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By Authority of the Commission.

IN THREE HANDSOME VOLUMES, CLOTH LETTERED, GILT EDGES, PRICE THREE GUINEAS,

THE

OFFICIAL ILLUSTRATED CATALOGUE

OF THE

of the Works of Industry of all Nations,

1851.

THE EARTH IS THE LORD'S AND ALL THAT THEREIN IS
THE COMPASS OF THE WORLD AND THEY THAT DWELL THEREIN.

This Work forms a complete Scientific, Historical, and Illustrated Record of the Great Exhibition of 1851. It has been prepared with care from the descriptions of their own articles furnished by the Exhibitors themselves, with the assistance of a considerable number of men of science, eminent in the different departments embraced by the Thirty Classes into which the Exhibition was arranged. It is, in addition, furnished with a large number of Illustrations of the most interesting and important objects of art and industry.

The Catalogue comprises extensive original Notes and Papers on various subjects, which are intended to communicate to it a value enduring beyond the period occupied by the Exhibition itself, and to render it permanently interesting to readers of all classes. It has been prepared with the assistance of the following Gentlemen:—

Professor Owen, F.R.S.
Baron Justus Liebig, F.R.S.
Professor Lindley, F.R.S.
Professor Forbes Royle, F.R.S.
Professor Bell, F.R.S., Sec. R.S.
Professor E. Forbes, F.R.S.
Professor Ansted, F.R.S.
Professor Hosking.
Professor A. De Morgan, M.A.
Philip Pusey, F.R.S.
Rev. J. Barlow, F.R.S.
Rev. J. Booth, F.R.S.
Captain L. L. Boscawen Ibbetson, F.R.S.
James Glaisher, F.R.S.
J. E. Gray, F.R.S.
Robt. Hunt, Keeper of Mining Records.
Robert Ellis, F.L.S.
S. Clegg, Jun. F.R.S.
W. De La Rue, F.R.S.
J. Spurgin, M.D.
John Wilson, F.R.S.E.
Henry Dibdin.
W. C. Aitken.
H. Maudslay, C.E.
Robert Hendrie, Jun.
J. A. Nicholay.

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PREFACE TO THE OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Perhaps no statement connected with the appearance of this work is calculated to create more surprise than that the greater portion of it was actually in type prior to the first of May. Its condition at that period may be thus described. The manuscript accounts of the articles of a large number of the Exhibitors had been compiled, set up in type, and subsequently condensed, annotated, and revised, and required but a little more attention to fit them for publication. In addition, a large proportion of the illustrations were completed and fit for printing. But at that moment, what was the condition of the Exhibition Building itself? Only on the morning of the first of May were tickets affixed to a few articles in a few Classes, and the position of many Exhibitors, even on the British side, was not finally determined. This arose out of the efforts made to obtain a strictly classified arrangement of articles on this side. Many articles placed in the hurry of preparation in the space allotted to one Class were improperly thus placed, and required to be removed to other Classes; and a large number of explanations were found to have been received from Exhibitors who had ultimately not been able to send in their goods in time. Whilst many Classes were arranged rapidly, others remained, owing to peculiar difficulties, in a state of great incompletion, and incessant alterations of the numbers and positions of the Exhibitors were necessary before they could be considered perfect. During this time, which is to be reckoned by weeks rather than days, the number of additional manuscripts received from Exhibitors who had neglected sending them in until long after the opening of the Exhibition, was immense, and the adjustment of the additional matter thus created was in itself a difficulty not to be easily subdued.

While an amount of order—surprising in its extent, though imperfect in the degree requisite for the publication of a work so costly in its preparation as the present—reigned on the British side of the Building, the state of that devoted to other nations could scarcely be entitled to that term until a month subsequent to the day of opening. Many foreign states had not sent in their catalogues, and the arrangement of their productions was very imperfect.

The peculiar nature of the Catalogue, also, as a work produced by many thousand authors, naturally brought upon it, through the medium of the small Catalogue, the corrections of a large number of those whose manuscripts formed its foundation, in addition to those rendered necessary, in order to obtain some degree of uniformity in the literary composition.

The combination of the elements of disorder thus presented has never before arisen to oppose the publication of any work in this or other times; and its effect upon its preparation is only to be estimated by those who have watched its progress, and are familiar with the complicated arrangements necessarily preceding the production of any printed book containing illustrations. The great extent of the Catalogue rendered the disturbance of any of its parts absolutely fatal to its publication in a reasonable time, and even in a moderate condition of accuracy. In the midst of all these adverse circumstances an attempt was made to publish it as speedily as possible after the opening of the Exhibition; but this attempt was rendered fruitless in consequence of the ceaseless accessions of additional matter, and of the alterations of position in that already set up.

Under these circumstances the Contractors, anxious to produce so extensive a work in as perfect a condition as possible, resolved, at considerable loss to themselves, to delay its appearance until every alteration of importance had been made in the arrangement of the Building and by Exhibitors themselves. In this state it is now published, and is intended to serve as a lasting memorial of the splendid collection of which it professes to be the exponent. When its magnitude is considered, and due regard had to the great difficulties inseparable from the production of an illustrated book of this kind, it must be acknowledged that the period occupied in its publication has been comparatively brief and its preparatio rapid.

The due appearance of the smaller Catalogue, on the first of May,—in itself, perhaps, one of the most remarkable instances of rapid typographical execution ever accomplished,—is also an indication of the substantive pre-existence of the present work before that date, since the smaller Catalogue is only a very condensed summary of the present, and was derived from the material forming the illustrated edition. The difficulties attending the publication even of that work, may be gathered from the fact, that only three days before it appeared was the order of succession and temporary arrangement of the Exhibitors in the Building determined on; and in that short interval, and before its publication, their arrangement in the Catalogue had much of it to be made.

For an account of the method adopted in the preparation of this Catalogue reference should be made to another page. It is, however, due to those whose valued assistance has added so much to the permanent interest which will attach to this work to state, that there are several portions which could not, by pressure of time, be submitted to the benefit of their revision, and for such, and the general scientific accuracy of the work, the subscriber to this notice must be considered alone accountable. That the following pages are to be considered free from technical and scientific inaccuracies could scarcely be expected; but much care and labour have been expended to give them, as far as possible, this character.

The consideration just named may also render expedient, if not necessary, a simple statement of the part fulfilled by the writer in connection with this work. The production of the general plan of the book, its development, after sanction by the Executive Committee, and literary construction out of the crude material obtained after compilation from the manuscripts of Exhibitors—this material resulting from the official instructions given for the compilation of the Catalogue, and the term compilation including, in this case, merely the rough preparation of Exhibitor's manuscripts for setting up in type, the resulting matter being consequently in a very imperfect state—with the general literary and scientific superintendence and management of the work—these have formed the occupation of the writer in connection with it, and for these he may be held responsible. As the result of the combined labours of the scientific annotators and of the writer, and after having received official sanction and revision on the part of the Executive by the officer appointed, this Catalogue is now put forth. The constant effort of the writer has been to prepare a work of permanent value and enduring interest. May it be shown in the issue that the labour bestowed upon it has not been in vain.

At the period when this work makes its appearance in a complete state, the Exhibition is about to close. The first function of a Descriptive Catalogue can therefore scarcely be fulfilled ere the great spectacle it illustrates will pass away. To those wonders of Art and Industry which man, taught by God, has been by Him enabled to accomplish, it will prove a guide but for a brief period. But its more permanently valuable offices then commence; and it may be reasonably hoped that, as a record of the most varied and wonderful collection of objects ever beheld, and as a book of reference to the philosopher, merchant, and manufacturer, it will constantly prove both interesting and instructive to the reader.

It is probable that, with the return of the Exhibitors and of the articles to the numerous localities abroad whence they were derived, copies of this Catalogue will be sent, and taken also, and that these pages will be read in many lands long after the Exhibition shall have become matter of history. May they be found, on examination, to contain nothing which is not in harmony with the spirit of the motto on the title-page; and, while descriptive of the successful labours of man, may it not have been forgotten that the glory and praise are due to God alone.

ROBERT ELLIS.

OPINIONS OF THE PRESS.

Times.

"No work published of late years has a history so remarkable as that of the *Official Catalogue*. The work was already designed in 1850, and the right of publication sold for a considerable sum. No definite idea was then entertained of its plan, or even of its authorship. Ultimately it was decided that the exhibitors themselves should be the authors; and with a view of assisting the tyros in literary composition elaborate instructions were given for their guidance. The result of such a decision can be more easily imagined than described; and the labours of the editor, Mr. Robert Ellis, in reducing the mass to an intelligent shape may be classed with those of Hercules.

"The three volumes may be divided into four parts. First, the introductory matter, comprising a history of the enterprise by Mr. Henry Cole, an account of the building by Mr. Digby Wyatt, and of the compilation and revision of the *Catalogue* by Mr. Robert Ellis, a classification of the objects by Dr. Lyon Playfair, and a map by Mr. Peterman. After the introductory matter come, *secondly*, the catalogue proper, written by the exhibitors in the manner above described; *thirdly*, the system of introduction to classes and countries, with scientific annotations; and, *fourthly*, the illustrations. Of these four quarters, the chief popular interest will probably attach to the first, and especially to Mr. Cole's introduction, which tells the tale of the origin and progress of the Great Exhibition. The author glancing back observes that such institutions as industrial displays, in which the race is for excellence, and direct commerce is not the primary object, have taken place during the last century; and he dwells with proper emphasis upon the fact, that from the first they have been entirely originated by individuals or societies, independently of any Government assistance. He then gives a sketch of the various minor exhibitions instituted by the Society of Arts and other societies, with a passing allusion to the important subject of the national exhibitions of France. Perhaps a greater detail was desirable on this part of his task, considering the importance that was attached to a report on the last French Exposition by Mr. Wyatt, which undoubtedly furnished valuable elements in matters of detail towards the development of the Great Exhibition itself. To this succeeds a complete history of the undertaking, showing its adoption by His Royal Highness Prince Albert, the origination by him of the great idea of summoning all civilised nations to take part in it, the early difficulties through which the promoters of it had to struggle, and the arrangements necessary to its proper ordering and final institution. Mr. Cole evidently considers the great feature of this Exhibition to be the thorough development of the self-supporting principle on which it was established. We may take the following as the expression of a very general feeling on the part of the Royal Commissioners upon this subject:—

"Those who have had experience only of the Continental systems of exhibitions, which are managed and paid for wholly by their Governments, find it difficult to understand the self-supporting and self-acting principle of the present Exhibition, which has hitherto depended wholly upon the voluntary subscriptions of the British people; the heavy liabilities which still hang over the undertaking rest wholly upon individuals in their private capacity, and not upon the Government. The British people, as well poor and working men as the richer classes, have had the undivided responsibility, not only of conducting the first experiment of an Exhibition of their own works on a national scale, but of collecting funds to pay all the expenses of an Exhibition of the Works of all Nations. Our National Exchequer has not been charged with any portion of the expenses, but the contributions of the most remote towns have been received and applied, even in payment of the military and police assistance which the Government has permitted to be employed on the occasion. So completely spontaneous has been the organisation for the Exhibition, that not even the several municipal councils throughout the country were employed, but an independent organization was created for the express purpose wherever a locality was disposed to form its own local committee. Without the assistance of the local committees of the United Kingdom no Exhibition of the Works of Industry of all Nations could ever have been accomplished."

"The result has demonstrated the wisdom and the success attendant upon this career of honourable independence, and has taught on a grand scale the truth of the popular aphorism—Heaven helps those who help themselves.

"Mr. Wyatt's account of the construction of the Crystal Palace is a good specimen of an architectural paper, partially popularised, and rendered intelligible to the general reader. It is divided into two parts—the first treating of 'the building as it stands;' the second, 'of its creation.' The progress of the structure is traced in this paper from the erection of the first column to the stopping in of the last pane of glass. The subjoined extract will indicate the general character of the paper, and contains an interesting allusion to one of the constructive phenomena attendant upon the progress of the Exhibition Building:—

"The glazing of the nave roof presented formidable difficulties, from the great extent of work to be got through in so short a space of time. The ingenuity of the contractors was, however, brought to bear upon the subject, and provisions were made by them for the simultaneous glazing of large areas, entirely independent of variation of weather. Seventy-six machines were constructed, each capable of accommodating two glaziers; these machines consisted of a stage of deal about eight feet square, with an opening in its centre sufficiently large to admit of boxes of glass, and supplies of sash-bars, putty, &c., being hoisted through it. The stage rested on four small wheels, travelling in the Paxton gutters, and spanned a width consisting of one ridge and two sloping sides. In bad weather the workmen were covered by an awning of canvas, stretched over hoops for their protection.

"In working, the men sat at the end of the platform next to whatever work had been last done; from which they pushed the stage backward sufficiently far to allow them to insert a pane of glass, and as soon as that was completed they moved again far enough to allow of the insertion of another. In this manner each stage travelled uninteruptedly from the transept to the east and west ends of the building. The dexterity acquired by the men in working the machines was very remarkable. By means of them 80 men in one week put in upwards of 18,000 panes of glass, being not less than 62,600 feet superficial. The greatest number of panes inserted by a man in one day was 108, being 367 feet 6 inches of glazing."

"The third introductory article treats of the difficulties through which the *Catalogue* had to pass, from its first stage, as exhibitors' manuscript, to its completion in its present form. No person can read it without wonder that after such a complication of perplexities the book ever made its appearance. The following gives an outline of one of the first troubles into which it fell in its progress towards perfection:—

"So soon as the work actually commenced, a mechanical difficulty of no common proportions presented itself. On the distribution of proofs for the purpose of annotation and correction, they were necessarily cut up into separate portions, which had destinations as far distant as Germany and remote parts of the United Kingdom, whither they were despatched for the purpose of insuring their scientific and technical accuracy. Many thousand proofs were thus scattered in various directions, yet all were required to be gathered together again, and arranged precisely in the same form and order as that assumed prior to their dispersion. Some of these proofs were not more than three inches long, and not broader than a narrow riband, containing *only* two or three lines; the difficulty of determining and immediately affixing the proper place of such a minute strip in a work of such magnitude as the present, seemed to be great. A simple method of ascertaining, not merely the place in the *Catalogue*, but its entire history, its destination, annotator, and return, was, however, contrived, and the history of every proof has thus been accurately recorded. The information thus obtained was so accurate and precise that on the temporary delay of very small proofs their destination was instantly discovered, together with the date of transmission and the name of the annotator to whom they had been sent. Much punctuality characterised the return of the dismembered portions of this large volume. Had not such been the case, the original plan of scientific and technical revision could not have been persisted in."

"Of the classification of objects compiled by Dr. Playfair, with the assistance of eminent persons in the various arts, we can say no more than it is an elaborately accurate skeleton of the philosophy of industry and art.

"The Catalogue Proper is thus arranged:—1. United Kingdom, Classes 1 to 30; British Colonies and Dependencies, which are thus subdivided—*a*, British possessions in Asia; *b*, in Europe; *c*, in Africa; *d*, in America; *e*, in Australia. To these succeeds the portion of the work devoted to Foreign States, commencing with Austria and ending with the United States. The British Catalogue extends over 1,002 pages, the Foreign over 470. In the former are included the united catalogues of almost all of our colonies and dependencies with that of Great Britain: in the latter are the distinct catalogues of every Foreign State, even when, as in some cases, these were not represented by more than two, or even one, exhibitor in the Industrial Palace.

"It would be impossible to give an adequate idea of this portion of the work without such copious extracts as would swell this notice to an unusual and inconvenient length. Besides it might happen that the sacrifice of our space would receive no adequate compensation in the approbation of our readers. The vagaries of exhibitors, which would undoubtedly have proved amusing in their original shape, have necessarily been toned down to an uniform monotony, and the task of selection would be advantageous neither to reader nor reviewer. Something, however, should be said of the annotations, which form a series of short and pithy notes, which will always make them not less interesting than instructive to readers of every class and position in society. Their essential character is less commentatorial than elucidatory. They are explanations and additions—not criticisms. They are intended to give value to what might otherwise have escaped appreciation, and importance to subjects whose significance the general reader might not have otherwise caught. They often consist, it is true, of simple enunciations of known facts; but they are so associated with the text as to give unusual force and prominence to the most universally accepted truths. At the same time the actual amount of information they embody offers a very complete view of the sciences which are now daily ministrant to industrial progress.

"We regard the introductions to the different classes and countries as among the most valuable portions of this work. They are all, with one exception, the production of the scientific superintendent of the work, Mr. Robert Ellis, who has contrived to indicate distinctly in a single page the most prominent objects of every class or dependency.

"The addition of an index of names and a separate one of subjects adds great value to this *Catalogue*. The system of classification renders the work of easy reference to the end of the Catalogue of the United Kingdom; but beyond this it would have been of little use to the reader without the indexes. In fine, these volumes may be accepted as a very valuable addition to the stock of useful practical knowledge. Independently of the extraordinary undertaking which they are intended to commemorate, they form a collection of facts connected with the industrial progress of the civilized world which cannot fail of producing important results for the future; and even admitting that greater care and more leisure might have produced a more complete work than the *Official Catalogue* which lies before us, yet it must equally be admitted that the production itself in the short space of a few months is not the least wonderful event among the wonders of the Great Exhibition."

Observer.

"A work of immense magnitude, and most carefully and elaborately compiled. Produced with the assistance of men of science, it is intended to form a scientific, historical, and illustrated record of this gathering of the arts, products, and industries of the world; and when finished, it is likely to be one of the most interesting manuals of general information in the English language."

Globe.

"This will be a *κτῆμα ἐς ἀεὶ* for all men's shelves; and the *Annus Mirabilis* 1851 will live in its pages, long after the longest assignable duration to Mr. Paxton's prodigy of glass and iron."

Sun.

"In the compilation of this catalogue, the official contractors have evinced not only enterprise and activity, but an extraordinary amount of care and of conscientious application. Nothing scarcely could be more clear than the whole arrangement of the contents, more easy of reference, more complete even to minuteness, or more comprehensive in their entirety. Those touching and majestic lines of Holy Writ are with a solemn significance inscribed upon the title-page—"The earth is the Lord's and all that therein is: the compass of the world, and they that dwell therein."

Leader.

"The two 'Official Catalogues' must not be overlooked; they will be historical monuments. The larger catalogue, which is descriptive and illustrated, is a work interesting in itself. The introductory chapters give a lucid account of the story of the Exhibition, from its first conception through all the stages of its execution; and the illustrative woodcuts will render it a delightful work to turn over hereafter, when the images have somewhat faded in our memory."

Examiner.

"Jules Janin has been lately eloquent on the theme of British punctuality, and there surely never was a more marvellous exemplification of the quality that so startles the lively Frenchman than the appearance of the Catalogues of Messrs. Spicer and Clowes for sale on May-day morning. Up to a late hour on the previous day the thing not only seemed impossible, but would have been so to any printer whose dictionary contained *ce bête de mot*; but, precisely as promised, the goodly quarto of three hundred and twenty pages made due appearance for a shilling, and will remain a really striking monument of the zeal and determination employed in this great enterprise."

Morning Advertiser.

"The progress of the human race,
Resulting from the common labour of all men,
Ought to be the final object of the exertion of each individual.
In promoting this end
We are carrying out the will of the great and blessed God.

"Such are the lofty sentiments recorded in imperishable print, upon the page of a mere catalogue, which, or our prescience is wofully at fault, will be treasured among the most remarkable records of this age of rapid progress. To this dry list, as it seems at the first glance to be, will many a future reference be made. The subject matter, we need hardly say, rises above and goes beyond the mere scope of review. It is simply the dictionary of art and industry, the guide and expositor of man's progress, the indication of his state of civilization, the lexicon of his luxury, the symbol of his peaceful intercourse, the cataogue of his demands and aspirings, their position, number, nd supply in the *annus mirabilis* '51. The initial year of he second half of the nineteenth century sees the completion of the first 'census' of commerce, art, and industry; the first marked epoch, whence hereafter shall date the history of pursuits as yet without chart, chronology, record, or the means of comparison and estimate. Such are some of the many thoughts suggested by a sight of the uninviting and multifarious catalogue of the objects assembled beneath the crystal bow in Hyde Park. But, above all, and superseding other ideas, arises wonder at the vast labour of revision, the unsparing severity of excerption, the kind yet cruel pruning redundancies that must have been herein exercised, ere the crude and undigested mass of material furnished by the various exhibitors could be reduced to the concise form in which we here possess it.

"To omit mention of the diligence, enterprise and executive ability here shown by the contractors, Messrs. Spicer Brothers, and Clowes and Son, would be more than an oversight, it would be a positive injustice.

"As a whole, the 'Official Catalogue,' like the great vitreous palace which stores the invaluable treasures, deserves study as one of the monuments of the national industry in the year which gives it to the world."

Examiner.

"Here in three handsome volumes we have the Exhibition itself upon paper *minus* the pleasure of the sight, and *plus* a great deal of information. What the eye loses, pictures, abounding in these volumes, do a good deal to supply; and what the understanding gains is the concentrated aid of about forty of the best attainable guides (writers employed for the purpose), who tell the story of the building thoroughly, and take us through it, giving interesting information about everything that it contains.

"These three volumes, in short, are of a size somewhat commensurate with their subject, and of a quality that does not throw discredit on their size. They are also most liberally indexed. There is a directory of names connected with the undertaking, as exhibitors or otherwise, which occupies about ninety closely-printed three-columned pages. There is an index of all the articles exhibited; and really it is quite an amusement to look down this index merely, and note the strange variety of articles contained in the grand *omnium gatherum* which come into opposition under the laws of alphabetical affinity. For example, here is a succession of things—Tinsel Ornaments, Tintern Abbey, Tiptree Hall Farmery, Tire Bars, Tissue Paper, Tissues, Tobacco, Tobacco Boxes, Tobacco Pipes, Toilet Box, Toilinets, Tombacs, and Tombs; from which we go on through Tonnage in Ships, Tools, Toothpicks, and Tow, to Towelling.

"The volumes of Messrs. Spicer and Clowes will of course be necessary furniture in every large library; and being anything but an uninteresting catalogue, being truly a real living, talking record of the Exhibition, and talking moreover in a very pertinent and interesting manner, it will be a pleasant book for any man to have upon his shelves.

"We need say no more to recommend this catalogue as a work most worthy of its object; a work that will remain for ever as the record of the famous undertaking. We do not know with what pecuniary results the 'official contractors' may have brought their labours to a close; but it is certain that they have perfectly kept faith with the public, and that among those who have largely contributed in various ways to the completeness of our industrial triumph they have established a strong claim to be remembered."

Morning Herald.

"Among the many wonders which the Crystal Palace contained, the Catalogue itself, from the extensive arrangements attendant upon its compilation, and the gigantic encyclopedical size to which it necessarily swelled out, is not the least. We have now before us three goodly-sized volumes, containing about 2,000 pages of engravings and letter-press, the result of the literary industry of many months, and the fruits of the skill and intelligence of a whole army editors, commentators, and correspondents, whose services were called into requisition for their production. We know of no department of literary labour which is at once so onerous, so uninviting and so thankless as the compilation of catalogues; and yet there are many points of interest to the public involved in the complicated and extensive arrangements connected with the collection and arrangment, from so many thousand contributors and so many countries, of the varied and valuable mass of information contained in these volumes. It may be stated, in the first place, that the work is without a parallel or a precedent in the annals of our literature, and the design and means of execution being novel, rendered the publication a task of extraordinary, and, we may add, unforeseen difficulty.

"Every branch of science, art, and industry is here fully and efficiently represented. The most striking and remarkable features, and the whole scope and significance of the Exhibition, are here embodied, divested of all the promptings of partiality and all the infirmities of judgment. The literary department has been presided over by men fully conversant with the various processes in our manufactures, and the character and uses of the immense variety of objects collected in the building in Hyde Park; and the work will thus have an enduring interest in the mass of valuable information of almost every description which it contains, inasmuch as original information of great interest and novelty has been obtained from foreign countries which have taken a prominent part in the Exhibition.

"In addition to these difficulties, which have been surmounted to an incredible degree, it must be observed that the Catalogue embodies to a large extent the science of commerce. The changing and inaccurate conventional terms of trade are here, in many instances, converted into the precise and enduring language of science; and we have no doubt that this improvement will not be without its fruit in the promotion of the objects of industry; because hitherto obstacles have been experienced by commercial men in their endeavours to introduce into trade any new materials of industrial importance.

"Of the manner in which the wood engravings, amounting to upwards of 1,200, have been executed it is impossible to speak too highly. They have all the delicacy and finish in many instances of steel; and from many months' personal observation, we can bear testimony to the accuracy with which forms the most complicated and elaborate have been transferred to paper. Unlike a catalogue, in the ordinary acceptation of the term, it abounds in sources of amusement and instruction for every class and every taste, the vast collection of the Exhibition here finding its literary type, and furnishing matter for entertainment and reflection, as well to the fashionable reader, the student, the man of science, as to the hard-handed sons of labour, by whose energies and industry the vast pile and its contents have been brought together. That the respectable contractors, Messrs. Spicer and Clowes, have amply fulfilled all the stipulated requirements and conditions of the agreement cannot, we think, be questioned. Indeed, we have reason to think that they have felt something of the dignity and importance of the occasion, and have acted with a spirit and liberality beyond, perhaps, what the pecuniary results would justify. One of the great obstacles to the progress of the work, as well as one of the chief causes of the great additional expense incurred, was the incessant necessity for the alterations of descriptions and places, and insertions of fresh material. In its preparation, however, an amount of literary labour has been expended which communicates to it a value enduring beyond that of the occasion of its production. The vast and wonderful accumulation of the productions of human industry, of which it is the type and the exponent, was collected only for a time. Its intention accomplished and its objects achieved, the industrial store is being again rapidly scattered among the nations of the earth. The Illustrated Catalogue, the record of the [illegible] and objects of the Great Exhibition, will form an enduring memorial, which few of those who have rambled through the vast collection and can afford the means will willingly be without. It is somewhat remarkable, as evincing the judgment that presided over the objects selected for illustration, that the bulk of them have been the recipients of prize medals. We have only one other observation to make, and we feel called upon, in justice to the contractors, to offer it for the consideration of the executive committee. During the time this large series of publications was in progress, the greater portion of the ordinary business of the contractors was suspended—the Catalogue itself was put in type at least three or four times over; thus adding another very serious item to the expenses incurred. We think when so many of those who have rendered good service to the Exhibition are being rewarded, it would be a graceful and appropriate act of liberality, on the part of the executive, to waive the claim for royalty, which the terms of the contract implied, even if they do not consider the contractors entitled to any further remuneration."

Athenæum.

"A few weeks more, and of the visible glories of the Great Exhibition but a visible wreck will remain. Memory, as we have said, may reproduce—and will—many a picturesque section and selected object; but less uncertain records are required to inform us of the actual value, industrial and scientific, of those contributions from every quarter of the world which we have seen assembled in Hyde Park.

"In the 'Official Descriptive and Illustrated Catalogue' we have such a record. The work is without a precedent in the annals of literature; and when we regard the circumstances of difficulty that surrounded the task of its execution, the praise bestowed on those who undertook it can scarcely be too great. The contractors, in that enlarged spirit which appears to have entered into all that belongs to the Exhibition, engaged men of reputation and authority in every department of science and manufacture to contribute such descriptive notes as should render the work eminently instructive. It, thus, contains a body of annotations which express the condition of human knowledge and the state of the world's industry in 1851:—and is a document of the utmost importance, as a summary report of this vast international 'stock-taking,' which no great library—nor any gentlemen's library, of those who aim at the collection of literary standards—can hereafter be without. It is not the work of a day, a month, or a year: it is for all time. Centuries hence it will be referred to as authority on the condition to which man had arrived at the period of its publication. It is at once a great Trades-Directory informing us where we are to seek for any particular kind of manufacture—a Natural History, recording the localities of almost every variety of native production—and a cyclopædia, describing how far science has ministered to the necessities of humanity, by what efforts the crude products of the earth have been converted into articles of utility or made the medium of that refined expression which belongs to the province of creative art.

"Let it not be thought that because the Exhibition is over it has fulfilled its purposes. It stands to the world in precisely the same relation as do the philosopher and his works. The individual will die; but the thoughts which have been born of him, the truths which he has discovered, live on, quickening and kindling other thoughts and truths. The Exhibition has lived its allotted time, and died; but this Catalogue is the sum of the thoughts and truths to which it has given birth—and which form the intellectual ground whereon the generations that we are not to see must build."

"It will be evident from what has been already stated that a more important contribution to a commercial country than the 'Official Descriptive and Illustrated Catalogue of the Great Exhibition' could scarcely have been offered:—and this will be yet more strikingly shown when we come to the consideration of the manufacturing sections and of the contributions of foreign states. Regardless of expense, this work has been completed by the aid of a band of no fewer than twenty-six annotators, selected as we have said, from eminent professors of science, and skilled manufacturers. In addition to these, and independently of the editor's staff of assistants, some ten other gentlemen were called on to furnish technical information and lend the assistance of their knowledge:—so that all possible means have been taken to render the 'Official Descriptive and Illustrated Catalogue' worthy of the wonderful gathering of which it is the permanent record."

Observer.

"It may be truly said that this is the most extraordinary work that has been ever brought forth in this or any other country, containing, as it does, a mass of information relative to the natural and artificial productions to be found in every quarter of the globe, with descriptions of the nature, use, and history of each. If the object of such a publication had been merely to serve the purposes of an ordinary descriptive catalogue, it might justly be observed that for such purposes it has come forth too late, seeing that the objects therein described have been already withdrawn from our view; but these volumes are designed to serve purposes at once more important and more enduring. They are designed to preserve and to fix in the public mind a lasting record of the results to which the industry, the ingenuity, and the invention of the world had reached in the year 1851, and to establish a starting point whence future ages may proceed onward in the march of improvement.

"The first volume opens with a list of the illustrations. This list, simple as it may appear to the eye of an ordinary observer, is suggestive of the extraordinary character of the work in which it appears. The space devoted to this simple 'list' would suffice of itself to form a respectably sized volume; and hence may be inferred the enormous number of illustrations dispersed throughout the work, and which, when examined, are found to be in the beauty and the perfection of their execution, as well as in the judgment by which appropriate objects for illustration were selected, worthy of the occasion which these volumes are designed to commemorate.

"In noticing this Catalogue, we purposely abstain from attempting to particularise any of the innumerable and able descriptions of works of art or of fancy, or the admirably-executed illustrations with which these volumes abound. Our reason for this abstinence will be appreciated when we remind the reader of the almost countless subjects which are here described; and of the fact, that of these subjects some thousands are rendered the themes of artistic illustrations, the execution of which reflect the highest credit on the engraver. The publication of this Catalogue was a necessity, which, if left unsupplied, would have incalculably marred the benefits derivable from the great occasion which has called it forth. Great as was the good of calling all nations together to aid in a display such as that which has so long maintained an attraction as deserved as it was unparalleled, a still more substantial, though possibly a less brilliant result, will be found to consist in the valuable record which these volumes contain. To have produced such a Catalogue at an earlier period is now shown to have been impossible. The very magnitude of its merits conduced to create that impossibility; but even at this period, and at future times, however remote, it will be not less welcome, or less wanted. It was not at the time when a gathering of millions during a period of excitement caused by the feelings incidental to an occasion so unparalleled—it was not at such a time that such a record could have been productive of its destined good to the reader, however pecuniarily profitable a hurried work might have been to the publisher; and, so far from regretting the delay, we rejoice at it; for by that delay the intrinsic merits of the work were enhanced, and its value stamped with an enduring character, which will remain as the best and most morally profitable result of the great industrial display of which it is a worthy and most invaluable record."

Weekly Dispatch.

"In addition to the medals to be awarded by the Jurors to those exhibitors the excellence of whose productions may entitle them to that highly-coveted distinction, it has been decided to present each exhibitor with a medal commemorative of the great event. In connection with this decision, we have received a suggestion which we deem well worthy of the consideration of 'the powers that be.' It is, that each medal should be accompanied by a copy of the Official Illustrated Catalogue. The Illustrated Catalogue contains a mass of valuable information upon every branch of science, art, and manufacture, which renders it an invaluable work of reference; and its extensive diffusion among the industrial world, could not but be productive of the most beneficial results. And we cannot doubt that Messrs. Spicer and Clowes, the contractors, who have throughout carried out their arduous undertaking in so spirited and satisfactory a manner, would still further aid the views of the Royal Commission, by not permitting the question of expense to be altogether an insuperable element in the carrying out of what appears to us a very admirable idea."

Atlas.

"An enduring and valuable record of the industrial marvels which the Crystal Palace contained. The time taken by the editors in preparing this Catalogue has been excellently bestowed. It was, indeed, not a work to be done in a hurry. By way of *vade mecum* to the Exhibition visitors, there was many another volume of more manageable size devoted to special countries, departments, or branches of industry, besides that marvel of high pressure — the Official Catalogue. In the Illustrated Catalogue the attribute most desired was the permanency of its interest. By accurate well-sifted information, lucid arrangement, and wealth of explanatory designs, this end has been effectually achieved. Long after the rare and curious contents of the Crystal Palace have been scattered over the world, this work will be valued as a memento and reflex of that marvellous collection. And if at some distant jubilee year another Exposition of human industry should take place under other conditions, and occupying, probably, a vaster space even than that which is now presented to our eyes, the exhibitors of that day will eagerly turn to the Illustrated Catalogue as supplying a standard by which to measure the advances they shall have made in their several *metiers* since the memorable year of 1851.'

Times.

"Although, in compliance with the original design of its projectors, the Great Exhibition has itself only an ephemeral existence, it is satisfactory to think that the most ample and complete records will be preserved of its character and details. Few events have attracted such an amount of contemporary publicity. The pen and pencil have both been incessantly at work in perpetuating its industrial triumphs, and when all the material vestiges of the display are removed from our eyes, it will still live in a form the most valuable and enduring. The reports of the Juries in each class will obviously prove an important *repertoire* of facts and observations, and the information which has been collected in newspapers, in periodicals, and in other channels of instruction, may also be turned to excellent account; but it is to the 'Illustrated Catalogue' that we must look as capable of being made the most complete and satisfactory work of reference hereafter on the great industrial pageant of 1851. That publication now approaches its completion, for three parts of it have already appeared, and the fourth will soon be ready. It is intended that it shall be issued in three volumes, the first two of which will be dedicated to the products of Great Britain and her colonies, while the last embraces the contributions of foreign countries. As far as our own exhibitors are concerned the work is complete, and from the portions that have already been given to the public we are enabled to form a pretty fair estimate of its character and the style of execution. Of all literary labours, that of getting up books of reference is, perhaps, the most tedious and the most thankless. The bare name of a catalogue kills the interest of the most indefatigable bookworm, after the collection of objects to which it was intended as a guide has ceased to be accessible. The present, however, is an exceptional case, and we predict for the 'Illustrated Catalogue of the Great Exhibition' a standard reputation, and a large share of public patronage, when the grass has once more grown over the site of the Crystal Palace, and the great event of this year has become a thing of the past. From unavoidable causes, the contractors, Messrs. Spicer and Clowes, are only completing the last pages of their work as the spectacle to which it relates is about to close; but they need be little alarmed at such a consideration. It has an enduring interest in the mass of valuable information of almost every description which it contains. To put the industrial products of the world under a glass case was a wonderful feat to perform; but here we have a still more extraordinary example of condensation, partly executed and in process of successful completion. The Great Exhibition is reduced within the compass of three not very unwieldy volumes, and to the intellect in all respects, and in most important respects to the eye, its features and significance are preserved. Every object in the collection will be found noted down and described with the amount of particularity due to it. The promptings of partiality and the infirmities of judgment are equally excluded from this unbiassed record. An extensive series of illustrations is made to embrace every object worthy of elucidation by the artists' power; and in order that the instructive character of the work may be fully sustained, annotations written by men of the highest qualifications are introduced to explain processes, point out the character and uses of objects, and develop in brief terms the *rationale* of the more remarkable or least understood branches of human industry. With these features of interest, the popularity of the 'Illustrated Catalogue,' when completed, seems secure. It will prove a complete literary type of the original to which it refers, opening up sources of amusement or instruction to every class of taste, and proving equally at home on the drawing-room table, handled by fashionable dilettanti, in the study, pored over by the scholar or the man of science, at the merchant's desk as a book of constant reference—in the factory, the foundry, the workshop, as a *repertoire* for designs, and as highly suggestive for future progress. A more pleasant work to dive into during an idle hour can hardly be imagined, for wherever it is taken up there is something new and striking, and worthy of attention. The necessity for condensation renders prosing impossible, and the classification of subjects secures an agreeable variety of subjects without monotony on the one hand, or a miscellaneous effect upon the other. Illustrations have been sparingly resorted to in the first portion, which relates to raw materials, but, as a substitute for this, we have tables and statistics of great value, and a large mass of information entirely original in its character. In the second part, which is devoted to machinery, numerous diagrams and sketches are introduced explanatory of the different objects exhibited. The chief interest of the Catalogue, however, in this respect lies in the third and fourth parts, the latter of which is still unfinished. The three volumes will contain, altogether, about 1,200 illustrations, and the greater number of them will be given in the last volume, which will be dedicated to the foreign half of the Exhibition.

"This is the proper course to pursue, for the foreign contributions are those which it is most important to have sketched. We are informed that original information of much value and interest has been communicated to the compilers of the Catalogue from the different countries which have taken part in the Exhibition, and that this will form a prominent feature of the work when completed. At present, while the public mind is saturated with the subject, the introductory position of the book may not attract the notice to which it is entitled; but when we are able to look back upon the whole undertaking from a point in the future, and proceed to take its exact measure as an historical event, we shall not fail to be duly impressed with the remarkable character of the information there contained. Within the limits of 107 pages are compressed Mr. Cole's account of the way in which the Exhibition was got up; Mr. Digby Wyatt's description of the Crystal Palace; Dr. Lyon Playfair's classification of the artificial world; the directory of the scheme; the list of jurors; and the preliminary notice of the Catalogue by Mr. Robert Ellis, its editor. Mr. Cole's narrative is especially worthy of attention for the insight which it affords into the machinery, by which vast projects like the Exhibition can be successfully carried out. Even in this country, where the principle of association is so thoroughly understood, that machinery must be pronounced to be a masterpiece of skilful combinations.

"Let us recall for a moment its chief incidents. A small body of men, without any influence of rank or wealth, and forming the council of what had previously been regarded as a useless society, conceived, as early as 1845, the idea of an Industrial Exhibition, national in its character. After one fruitless attempt, they engaged in a series of preparatory measures calculated to render their scheme acceptable to the public and secure of its support. Four years of indefatigable labour elapsed, and they had gathered around their undertaking an amount of support which they conceived justified them in again bringing it forward. They had placed it under the direct patronage of the Crown, and had secured for it, as an appropriate head, the name and the personal exertions of the Prince Consort. A Royal Commission was appointed, in which men of all parties, irrespective of politics, were included. In the meantime, the views of the projectors had expanded, and they resolved to give their scheme a cosmopolitan character. The great seats of our manufactures were successfully canvassed for aid, and foreign Governments responded to the invitations given to them, and promised co-operation. Yet even this powerful combination did not exempt the undertaking from perils that more than once threatened to be fatal. The question of ways and means was for some time a stumbling-block in the path, and the Commission long hesitated to assume the pecuniary responsibilities which, in some way or other, it was necessary to provide for in consequence of the determination of Messrs. Munday's contract At a most critical juncture Mr. Peto came forward, and, with a degree of public spirit and liberality which cannot fail to be appreciated, pledged *his name for a startling amount.* Then, when other difficulties had been overcome, the question of a building presented almost insuperable obstacles. At the last moment Mr. Paxton and Messrs. Fox and Henderson rushed to the rescue of the perplexed Commission, and after a succession of dangers, the scheme of the Exhibition was in safety. Had Mr. Cole's narrative been more detailed, it might have been rendered still more attractive; but the author, no doubt, prudently preserved silence on points which would perhaps have been indiscreet to touch upon; and the leading men in the Council of the Society of Arts having gained their object, are seen quietly resigning to more exalted names the honour and glory of an enterprise which they not only originated, but rendered practicable by their exertions. Of Mr. Digby Wyatt's account of the building, and of Dr. Lyon Playfair's classification, it is unnecessary to speak, as the public is already well informed on these subjects; but to the directory of the Exhibition and to the list of Jurors some amount of attention is fairly due. In these names are comprised an extent and variety of practical and scientific talent, the union of which on any one occasion, and for any given purpose, is altogether unprecedented. As the eye glances over the seemingly uninviting array, it is impossible not to be struck with the curious combination of persons which they present. Leading tradesmen and manufacturers rub shoulders with the most eminent philosophers of the day; and science, descending from her pedestal, mingles freely and unostentatiously with the followers of hard handed industry. Not only so, but all the nations of the civilized world send the most distinguished of their citizens in the peaceful arts to sit in judgment upon the comparative excellencies of rival products, and to determine at polyglot conferences the stage of industrial progress which mankind have attained. The directory of the Exhibition and the list of Jurors, taken together, form one of the most remarkable organizations that the world has ever witnessed—an organization which, considering its objects, implies not only an act of homage to industry, but a guarantee to civilization. The pages of the 'Illustrated Catalogue,' which contain these names, are as instructive and reassuring as any within its limits."

Literary Gazette.

"The philosophy of the Exhibition has yet to be written; but whosoever would wield his pen in this high theme must take the Catalogue as his text-book, and discourse upon the sections which are stereotyped in its pages. We heard a wise man say, 'I enter this place as I would a church: the wonders of God are brought before me, and the achievements of man working in the spirit of [illegible] here displayed. I always leave this mighty building a better man than I entered it.' The contemplation in quiet—now the excitement of the Exhibition and its thousands of visitors is over—of the Catalogue which registers its stores must have too its ennobling influences. None can know the difficulties attending the construction of such a Catalogue as this who have not been actually engaged on such a work. Under all [illegible] circumstances of difficulty by which we know the undertaking to have been surrounded, we are bound to declare that the work has been most ably performed in every department. Mr. Robert Ellis, to whom the editorial superintendence was committed, has worked most assiduously, and most of those gentleman who were selected as annotators have added much to the value of the work. On the whole, we much question if in any country, in the same time, any book of the same extent, presenting so various a character, could have been so well produced. The letter-press is unexceptionable; the wood-cuts are good and faithful; the registration, as far as regards the Exhibition, is correct, and the notes of value. This is no ephemeral catalogue; centuries to come it will be referred to as marking an epoch, and indicating the point to which man had arrived in the industrial arts in the Year of Grace 1851."

Morning Advertiser.

"The reader, on glancing over the pages of this great production, is struck no less with the number than the value of the pictorial subjects on which the prodigious outlay, untiring energy, and vast industrial and commercial resources of the contractors, have been expended and employed. Apropos of the contractors, it is but just to observe that they have more than kept faith with the public. They were indeed bold men, but bold with judgment too, who while the success of the Exhibition itself was yet a problem of doubtful solution, stepped forward with the 3,200*l.* (then much needed by the now plethoric-pursed Commissioners) for the privilege of printing the Catalogue, and further engaged to pay a 'royalty' of 2*d.* on each shilling, which, on 250,000 copies of the smaller shilling Catalogue, would amount, with the first-named sum, to 5,200*l.*

"To them, then, the public owes a debt of gratitude, as aids—and no mean one—in the fruition and perfection of an experiment of such magnitude and novelty of conception. Not only have they kept to the letter of their duty with the most scrupulous exactitude, but they seem to have been stimulated with the dignity and importance of the undertaking, and to have risen in spirit, and liberality, and energy as the task enlarged and new difficulties rose before them. A 'List,' a 'Catalogue,' a 'Guide,' a Hand-book,' was talked of—but lo! the demand was for an 'Encyclopædia.' The learned labours of academicians, the scientific researches of the chemist, the glories of sculpture and plastic art, the skill, activity, and the discoveries of the studios, the laboratories, the libraries, and the workshops of the world, are to be transferred to the pages of a book: and no object worthy of pictorial permanence, or requiring, from its nature, either portrait, view, plan, explanatory section, or diagram, is to be omitted from its contents. And to this the Egyptian task of refusing that necessary ingredient to artistic and literary, as well as typographic excellence, 'time.'

"Yet, how the difficulty has been grappled with, and almost utterly overcome, a careful collation of those vast volumes will show the wondering examiner, who shall honestly and diligently set him down to the task. As a Catalogue we fearlessly pronounce it a miracle of accuracy, a model of methodical arrangement. This will be well understood only by those who have experience in the difficult task of definition and classification. The collective idiosyncracies, the varying varieties, the clashing characteristics of 18,000 people of every class and of every nation, for such is the number of exhibitors. are here epitomised, arranged, compressed, chronicled, and, in many hundreds of instances, given to the eye in faithful, elaborate, and costly engravings.

"And all this is achieved, so that the last pealing anthem on the evening of the 11th of October had but just died away along the huge ribbed curve of the transparent transept, ere the gorgeous gilt-edged record, which is all that shall remain permanently of one of the world's wonders, is laid in its gay livery of blue and gold, upon the tables of its subscribers. In the words of Charles Dickens, applied to the smaller and cheaper issue, we have here 'the composition of fifteen thousand authors; most of them authors for the first time, who have had their excrescences pruned, and their diction occasionally mended. Now, the first production of an author, if only three lines, is usually esteemed by himself as a sort of Prince Rupert's drop, which is destroyed entirely if a person makes upon it but one single scratch. Some thousands of authors, therefore, must be dissatisfied with the attempts to make it available for public use.'

"Thus far Boz's pleasantry as regards the cheap shillingsworth; but the 'Illustrated and Descriptive' essays a yet bolder experiment. While it retains the terseness of description, it adds annotations of equal perspicuity, ability, and impartiality. These aids to a full comprehension of the Exhibition, from pens of the most qualified writers, set forth in succinct phrase the peculiarities, beauties, and characteristics of the various objects enumerated. This alone must insure the permanent value of the 'Official Catalogue.'"

Daily News.

"The 'Official Descriptive and Illustrated Catalogue' has now been issued in the form of three not over-bulky volumes. In the front pages of the first volumes are contained a neat array of industrial charts, of comprehensive indexes, and introductory matters, which, along with the 'raw materials' and 'machinery,' form, on the whole, a pretty solid mass of information. The whole of volume the second deals as exclusively with all that is connected with the United Kingdom, as the third and last does with the industrial contributions of the 'foreign states.' Following so closely as does the present publication on the heels of so many nimble forerunners, it must necessarily follow, that much that it contains is not of a strikingly novel character, and to a certain extent, the present catalogue has lent its powerful aid in diminishing its claims to priority. Mr. Robert Elis, the diligent and able editor, has let us into all the secrets of the Catalogue's gestation. Its type, he tells us, was actually ready, and so were most part of its illustrations, before the memorable 1st of May. One vast drawback, however, soon made itself manifest, inasmuch, as that which, to the casual observer, might have seemed to contain all the necessary elements of order and symmetry, was at least for the true purposes of the Catalogue's registry, confusion worse confounded. While some exhibitors had taken up positions which were clearly untenable, others neglected altogether to be at their posts. In this terrible dilemma, which it seems, lasted not days, but months, the contractors, Messrs. Spicer and Clowes, wisely adopted the plan before mentioned, of using the main text work of the costlier Catalogue for the shilling one, which thus acted as a feeler and test of substantive correctness. By degrees, as every one knows, successive editions were issued, in which lacunes were filled up, and inadvertencies properly corrected. And thus, by joint addition and elimination, we are now furnished with the most trustworthy industrial chart that has ever been issued. Besides these considerations, other notable influences were at work to retard progress: there were not merely self-laudatory encomiums to prune, unintelligible technicalities to lop off, and scientific jargon to pare down, the contractors had undertaken a higher, a more arduous, and more comprehensive task, that of being faithful exponents of the most striking features and instructive lessons derivable from the international gathering. The task, we are bound to add, they have executed in a lucid and masterly manner, which warrants the assertion of the catalogue's having been carefully revised by scientific hands. It is pleasant for once to find science descending from its lofty curule chair, and cheerfully lending its aid to the sister arts. Somehow, one fancies that this is the auspicious dawn of another era; that the learned will no longer muffle themselves sollenly in the sheets of the encyclopædia; and one hails, as it were, the downfall of exploded and abtruse problems. Be this as it may, and without drawing any further distinctions between the commonly wise and the remotely sapient of this or any other generation, it may be fairly said that an immense fund of varied knowledge and sound gratification may be derived, almost at random from these volumes, and the countless facts disseminated throughout their 1,431 pages.

"Those versed in chemistry, or endowed with a mechanical comprehension, will naturally revert to the first portion of the 'Illustrated Catalogue,' wherein we notice with satisfaction, not only indicated, but also illustrated, those specimens of human skill and ingenuity to which of late, especially, the public mind has been attracted, since the long-expected awards of successful competition. In this respect, the promoters of the 'Descriptive Catalogue' seem almost to have been endowed with an intuitive, not to say a prophetic, sense of individual merits. It must be acknowledged that, even looking at the succeeding volumes from the same point of view, they will be apt to convey impressions of greater interest. Many to whom the most brilliant mechanical achievements are neither more nor less than singular contrivances, will have a tolerably accurate perception of purely ornamental achievements; these will dwell once more, if only in the faint recollection of them, on the glories connected with the 'Milanese window' and the 'Veiled statue,' the 'Prussian shield,' and other illustrations, which, amid the universal pictorial deluge, seem to have been withheld by their proprietors for exclusive insertion in the 'Official Catalogue.' It may here be stated that the embellishments to the letterpress have combined the lithographic process, steel engraving, the wood engraving; though the latter, as usual, preponderates. The archaic pencil of Mr. Tenniel has given extra dignity to the cover as well as the frontispiece, the latter of which is decidedly Macliseau in design. Let us turn over the tempting page. The arrayed list of contents and their exhibitors greet one, as it were, on the threshold, and by their twin aid we can steer through the troubled industrial sea. Thus people, anxious to discover what species of heating apparatus has been rewarded by a medal, may search under either headings of 'Stoves,' or 'Metternich,' and will at once be directed to the 'Austrian Section, No. 413.' Then, nearer home, may be found under either title of 'Tapestry' or 'Sibthorpe'—the latter, no relation we hope to an M.P. namesake—and so on it goes throughout works of more or less universal interest.

"After dwelling in a sufficiently philosophical strain on the strangely varied host of individual characters contained in the list, and elbowing each other with alphabetical respect and order, from His Royal Highness Prince Albert to Herr Zwickl, we next encounter a few brief but telling accounts of the rise and progress of the Great Exhibition. Mr. Henry Cole throws into his introductory notice of the first stages of the proceedings some novel traits which redeem its hackneyed character. The construction of the building is narrated by Mr. Digby Wyatt in mingled facts, figures, and sketches. And lastly, Mr. Robert Ellis imparts to us a sense of the alarming difficulties he had to surmount in gathering together the thousands and one little manuscript slips of paper out of which one homogeneous work has arisen; justly remarking at the same time that the fact has hitherto been unexampled of bringing to successful issue a work of such monstrous complexity.

"The plan adopted in the long run was to direct attention at the opening paragraph of each section to the staple manufactures of the particular country or district; reserving, nevertheless, purely exceptional facts to be appended to that which was often its sole illustration. If the calm and venerable town of Frankfort exports the powerful ingredient known as 'Creosote;' if Hesse sends over that noxious weed 'chicory;' if the quiet city of

Leyden prides herself on her rigging; if Amsterdam, besides herrings for the million, produces horse-hair for the fiddle-bow; Belgium, mill-stones as well as linen; all these facts, great and small, are carefully scrutinised, and the weight in the balance of universal utility tested. Following out the spirit which seems to have dictated a graceful impartiality towards our foreign rivals, the third volume, relating more specially to their efforts, has been evidently got up with extreme care, and a more lavish expenditure of illustration. Their jewellery, their damascene work, their laboured groups, their ingenious furniture, have received equal honours at the hands of the draftsman. We can only join in the hope expressed by the contractors, that with the *élite* of the exhibitors and their contributions, to the numerous localities abroad whence they were derived, copies of this catalogue will be not only sent but taken also, and these pages read in many lands long after the Exhibition has become matter of history. The 'Illustrated Catalogue,' in its present comprehensive form, now affords almost the sole industrial source of future investigations which are professedly or in any way connected with the yet undeveloped resources of the nineteenth century."

Chemical Record.

"The list of annotators of the Catalogue, who have brought their practical knowledge to the elucidation of the various departments with which they were most conversant, comprises men whose names are guarantees of the value of the information furnished by them, and the appendage of whose initials to the articles described, stamps the work with that degree of authority, without which its practical value to the philosopher, the merchant, the manufacturer, or the general reader, would have been greatly lessened.

"We must not, in our notice of the introductory part of the work, omit to mention the valuable and interesting series of maps which adorn the commencement of the first volume, and on which the various manufacturing districts of our own and other countries are accurately delineated, and their natural productions shown.

"We cannot conclude our brief and imperfect notice of this important work, which Dr. Whewell commended in his inaugural lecture at the Society of Arts, on Wednesday evening, without stating that the highest credit is due to the publishers for furnishing so complete a record of the Great Industrial Exhibition. When we consider the immense difficulties attendant on the production of such a work—the joint production of more than 1,500 authors, whose varied contributions, in many languages, had to be classified and arranged, and, as far as practicable, annotated and explained—when we consider that this vast amount of matter was actually in type at the opening of the Exhibition, before even the articles were fully arranged in the building, we cannot but regard the 'Official Illustrated and Descriptive Catalogue' as being itself one of the wonders of the Exhibition. As respects the general style and getting up of the work, we need only say that it is worthy of the publishers, who have evidently spared neither cost nor pains to bring out a work every way worthy both of the great industrial undertaking and of public patronage and support. The library of the philosopher, the merchant, the manufacturer, the man of science and of refined taste, will be incomplete without the possession of a copy of this truly national work, which, interleaved, will serve the valued purpose of a record of the varied additions to our knowledge which every day present themselves to our attention, but which, from the want of a suitable place for their immediate record, pass from the memory almost as soon as received. New facts and discoveries, in any department of art and science, whether at home or abroad, would here find a local habitation—a place in which to be recorded, always easy of reference and access—and thus a vast amount of practical and useful information, now lost, would be stored up for the future advantage of ourselves and others."

Mining Journal.

"Of all the various publications professing to treat of the Great Industrial Exhibition, none have in any way approached, either as regards accuracy or completeness the work now before us. We believe there never was a work, the preparation of which was attended with so many difficulties; and we consider that the highest credit is due to the publishers, who preferred rather to run the risk of pecuniary loss, than to present to the world an inefficient record of an event, which—whether as regards the magnitude of its operations or the complete success which has attended it—is without a parallel in the history of the world.

"The annotations on the articles exhibited in the class of greatest interest to our readers, were wisely intrusted to Professor Ansted and Mr. Robert Hunt, and the result has been the production of a compendium of mining and mineral products, containing 70 pages of valuable matter, deserving of publication in a separate form. The account of the nature and extent of the different deposits of mineral fuel in various parts of the world, written by Professor Ansted, is replete with information. The remarks of Mr. Blackwell, on the series of iron ores contributed by him to the Exhibition, form a valuable treatise on the iron-producing districts of the country and the ores obtained therefrom, and elicited the marked commendation of Sir Henry De la Beche in his recent lecture at the Society of Arts. Mr. Sopwith's detailed account of the lead mines at Allenheads forms a useful treatise on this department of mineral produce, especially as illustrative of the various stages of progress from the mine to the market. Mr. Hunt contributes a store of information on the tin and copper of Cornwall, whilst the general mineral produce is ably annotated by Professor Ansted.

"The objects in the class of machines for direct use are illustrated in a very superior style, and their description is replete with sound practical knowledge. The specimens of successful application of mechanical skill to objects both great and small, and their adaptation to useful purposes in the leading manufactures of our country, form one of the most valuable portions of the work before us, containing, as it does, a history of the enterprise and industry of the mechanics of Great Britain, not to be met with elsewhere.

"The general style and character of the work throughout is very superior, and the profusion of well-executed engravings with which it is adorned greatly enhances its practical value. The library of every Englishman will be incomplete without a copy of this truly national work, which will be handed down from generation to generation, as an enduring record of an event, which excited the wonder of the civilised globe, and formed one of the brightest phases of the present century.

"We have from time to time heard various suggestions put forth, as to the most useful mode of appropriating the surplus of 150,000*l.* in the hands of the Royal Commissioners. We consider that in the distribution of this surplus, no country which took part of the Exhibition should be overlooked; and we see no practicable way of accomplishing this desideratum, more likely to give general satisfaction, than that of presenting a copy of the 'Official Descriptive and Illustrated Catalogue' to each mechanics' and scientific institution and public library throughout the United Kingdom, and also to the public libraries and institutions of the principal towns of the foreign countries which contributed to the success of the undertaking. Such a present would be a graceful acknowledgement of the assistance rendered by each town to the promotion of the general good, would meet with universal approbation, and give such an opportunity of including foreign countries in the distribution of the fund, as could not be well obtained in any other manner."

Spectator.

"But it is not as a catalogue, in the common sense of the term, that the three large and handsome volumes before us were ever intended to be considered, or could be used in the nature of things. They are not an introduction, but a comment; they follow, not precede, the vast collection which occasioned them, and our experience of it. The purpose of the catalogue is fulfilled if it moulds and enlarges our views and strengthens our recollections; for neither has it in fact accompanied the general mind to any large extent in the study of the Exhibition itself, nor did it mainly profess such an aim.

"The 'Descriptive and Illustrated Catalogue' is, then, a memorial of the Great Exhibition: and if that was nothing less than a compendium of the industry of the age and a concrete of its tendencies, this is a cyclopædia condensed. It is well known that the best assistance was secured to render it a scientific no less than an accurate representation of the Exhibition in its several branches. France with her exquisite art, Austria with her proofs of wide and diverse empire, Northern Germany with her multiform thought, Russia with her massive productiveness, America with her practicality, India with her gorgeousness, Egypt and Tunis with the lesson of their grand taste, as old as the world and as unalterable in its basis, our Colonies with the elements of their future—the nations from the four points of the compass are returning from our shores; England herself is resolving her congregated industry into its thousand constituents; the phenomenon is gone, and its habitation knows it not—too dubious of its own existence for long; but with these volumes in our possession, the fact will remain still a present fact. It has stamped itself not on the retina only and the memory—though it will not fade thence yet awhile, but here also, copiously and enduringly, to be referred to as yet with us. And if the record is valuable to us, its historical worth to future generations as a picture of the nineteenth century, in its products and results, in its ideas of itself, its belief of what it has done, and its expectations of how that is to be applied and rendered fruitful, and of what remains to do, is not easily to be estimated at the present day. We cannot match with it any so complete expression of a period, material and inventive. The age has impersonated itself, and sat for its daguerreotype. Whether we shall be judged as eminently moral or spiritual, or truly progressive, we must leave to the future; but in one many sided aspect we may expect to be known.

"The work, as we have said, has been ably got up. It presents a very sufficient view of the transactions relative to the Exhibition, as well as of its actual components: but we could wish, as the publication was of necessity postponed to so late a period, that it had been delayed some fortnight longer to admit of a list of the awards. Yet this, again, might be deemed by some to detract from its character for impartiality,

"And to party give up what was meant for mankind."

Athenæum.

"The third volume is devoted entirely to Foreign States; and to us as a manufacturing nation this volume is even more important than the other two. It furnishes the merchant and manufacturer with a copious Trades' Directory to all the great producers of the old and new continents. It gives intelligence in connection with the exhibition of particular manufactures — of the natural history, the locality, and the amount produced,—of substances employed,—such as we could not by any other means obtain. This is particularly the case with the Austrian Section of the Catalogue. The notes are most extensive, and convey information of the greatest importance on every variety of articles exhibited within the section of the Exhibition building devoted to that extensive empire.

"Such is an analytical review of the 'Official Descriptive and Illustrated Catalogue,' compiled and arranged, as we have said, amidst a complication of difficulties which greatly enhance the merit, though not the value, of the work. The descriptions furnished by the exhibitors were in nearly all cases, of necessity, to be altered before publication: and it was for some time, even after the opening of the Exhibition, difficult to fix the class and number to which many of the exhibitors belonged. Things were falsely named, — there was much grammatical confusion,—scientific terms were seldom correctly applied,—technical terms were frequently such as could not be understood—and these were often wrongly translated from the foreign returns made to the Editor. Amidst these and a thousand other difficulties Mr. Robert Ellis has steadily pursued his work; and it cannot be denied that he has brought it to an issue for which he deserves all praise. We do not mean to say that the work could not have been better done; if the labour had to be again gone through, there is no doubt that many improvements might be effected. But under all the circumstances of the time and the occasion, we regard the Catalogue as worthy of the great phenomenon which it records. A work of permanent value and enduring interest has been produced; and to all parties concerned it must be satisfactory to know that the labour which has been bestowed on it has not been in vain. To the philosopher, the manufacturer, and the merchant, we repeat, this Catalogue must, for ever, prove an invaluable work of reference.

"The 'Illustrated Catalogue' is, it is true, but an echo of the Great Exhibition. Three volumes can furnish but a faint reflex of the varied works of industry that were crowded together in an area of nearly twenty acres. Such, however, is the power of graphic and typographic art, that in these volumes are contained the essence and very pregnant soul of that so vast body. Tons of roses may be compressed into a few drops of the most precious *attar*,—a vast volume of vapour may be condensed into one drop of water. Such is the relation which may be assumed to exist between the Great Exhibition and this its Catalogue. Should this record of human industry survive some thousand years, what a picture will it present of the universal activity, the fiery energy, and the indomitable aspirations of this truly iron age! When generations yet unborn, in turning over its pages, may yet reflect on the wonders of engineering skill and mechanical refinement which were concentrated within the glassy walls of the Crystal Palace, and remember within how brief a period they had attained to such extraordinary development, the conclusion will be forced on their minds that if the will and energies of the public and the artists of the present day had been directed with corresponding intensity towards carrying the Fine Arts forward to the same degree of perfection, a result might have been realized equal to that which characterized the palmiest days of Greece."

Weekly News.

"Among a profusion of excellent designs by first-rate artists, very carefully engraved, each highly deserving of attention, we cannot help calling to view the following as among the most striking:—An Axminster carpet for Her Majesty's drawing-room; a drawing-room stove-grate, by Pierce, London; a sumptuous four-post brass bedstead, clothed in green silk, and a gorgeous bronze candelabrum, by Winfield, of Birmingham; a rotatory knife-cleaning machine, by Kent, of the Strand; the Tweeddale testimonial in silver, by Hunt and Roskell; the costly and tasteful silver goods by Smith and Nicholson; porcelain statuary, by Copeland; a magnificent cabinet, made for Her Majesty by M. M. Holland; and Taylor's Oriental towers in vegetable ivory. In the 4th Section, or Class XXX., relating to the fine arts, we have been much pleased with the statues by T. and Mary Thorneycroft, representing the Prince of Wales as a shepherd, and the Princess Royal as a gleaner; the Greek Hunter, by John Gibson; the handle of Murat's sword, by Hope; Titania and Ariel, two beautiful statutes, by Lough; and a fountain, by Messrs. Seeley and Co. The artists employed to design these numerous specimens, and the engravers by whom the wood has been cut, have greatly contributed to exemplify and adorn this pictorial book."

Boston (American) Post.

* * * * * * "I will tell exhibitors, and particularly the successful ones, what books respecting the Great Exhibition they will find valuable in showing the part they have acted. The Great Exhibition 'Official Catalogue' (costs about fifty cents) contains all the contributors and contributions in brief mention of all nations Then the 'prize list,' or as the title reads, 'List of Awards granted by Juries,' an octavo of 166 pages, (price half a crown, or about seventy-five cents,) contains the names of all the contributors from all nations who took the 'council medal,' or the 'prize medal,' and also those that were 'honourably mentioned.' By far the most valuable, complete, and ornamental list of contributors, articles and all, is the 'Great Exhibition Official Illustrated Catalogue,' in three volumes, octavo, at three guineas (about $15.) The 'List of Awards granted by

Juries,' is the same size pages, and could be bound with it. In this magnificently illustrated work there are several thousand woodcuts engraved in the first style of the art, representing all of the most striking and beautiful objects shown at the exhibition. It will be, with the 'List of Awards granted by Juries,' the only complete, valuable, and enduring record of the 'Great Exhibition of 1851.' I doubt not but there are several score of exhibitors in the United States that will get this work. The articles in the United States' department that are illustrated by engravings are the American Chair Company's chairs, Chilson's furnaces, Cornelius and Co.'s chandeliers, Dennington's floating church, Philadelphia, Ericsson's nautical instruments, Goodyear's India-rubber goods, the Maryland cabinet of woods and other products, and Watson's gazelle carriages.

"There were few of those splendid works of art from the United States that shone so conspicuously in the departments of many of the old nations of Europe. Powers's 'Greek slave' not long ago (1850) was engraved in the London Art Journal, with a most fair, candid, and every way complimentary critism. I will mention that Part V. of the 'Illustrated Official Catalogue' is done up as a separate part, and sold at 15s sterling, (some four dollars) and that contains the United States part of the exhibitors, with those of two or three other foreign countries. In the 'Illustrated Official Catalogue,' all, or nearly all, the articles are described much more *in extenso* than in the brief one-line paragraph of the 'Shilling (50 cent) Catalogue.' These 'Official Catalogues' are the only ones published that are deserving the name of *catalogues*, the one called the 'Art Journal Illustrated Catalogue' being a mere list of a few prominent contributors, with engravings, without one-twentieth part of the contributors being mentioned * * * * * No person now, who reads this, can say he does not know 'where to find himself' in the printed records of the Great Exhibition. I learn that a lot of the Official Catalogues (small), the Illustrated Catalogue in three volumes, and Part V. of the Illustrated Catalogue (separate,) have been sent over to the United States. Let those who have or have not been successful as contributors, that wish a permanent record of the Great Exhibition of 1851, send to his bookseller and get a copy of any or all of these works. As time flies away their value will increase with years."

Arbroath Guide.

The statistics furnished by Messrs. Spicer and Clowes, the enterprising contractors for the Catalogues, and, next, to numberless other works connected with the Exhibition, show the gigantic and formidable nature of this part alone of the undertaking. These statistics present, *ex facie*, somewhat of a barren, repellant appearance, being given in long columns of uninviting figures; but it is the very carefulness and minuteness of detail thus manifested that give to Messrs. Spicer and Clowes' statistics an added charm. Before proceeding to notice the actual sales of, and the sums realised for, the Catalogues, Official and Illustrated, Hand-books, Synopsis, &c., it should not prove unprofitable to say something of the preparatory steps necessary to be taken before these publications were fit to be placed in the hands of the visitors to the Crystal Palace. And first as to the trades necessary for the production of the Catalogues: these were, type-founders, printers' joiners, iron-founders, paper-makers, wholesale stationers, letter-press printers, printing-ink makers, composition roller-makers, engravers on wood, lithographic printers, hot-pressers, and bookbinders—in all twelve. Then as to the quantity and value of new type manufactured, and the quantity of type actually used for the publications. The technical names given by printers to the different kinds of type required we consider it useless to state, as being unintelligible to a general reader. The quantity of type necessary sorely taxes credibility; but the facts are incontrovertible. In addition to the usual resources of Messrs. Clowes' establishment—the extent of which can be judged of from their employing from 500 to 600 workmen—the supply of new type was 37 tons; the cost of which, and other necessary material, amounted to above 6,000*l.* Adding the type required for the Report of the Commissioners (the work from which we gather these interesting facts), and for the Jury Reports, a weight amounting to nearly *forty-eight tons* was set apart for the service of the Exhibition of 1851. For each of the three small Official Catalogues—in the English, French, and German languages—from *three to four millions* of types were required; for the "Priced Lists," upwards of *four millions*; and for the "Illustrated Catalogue," no less than *seventeen millions*. As illustrative of the amount of type in use in the several publications, the combined quantity, it may be observed, should be equal to the printed surface of 116 single *Times* newspapers. Next, as to the paper required for the Official Catalogues, and Reports of the Juries and Commissioners. For the small Official Catalogues 24,173 reams, or 507,631 lbs. weight were required; upon which, and 357 reams of coloured paper for covers to these catalogues, the paper duty, at the rate of 1½*d.* per pound, amounted to 3,260*l.* 12*s.* 6*d.* For the Illustrated Catalogue were required 100,000 lbs. weight of super-royal—the duty paid upon which was 625*l.* The entire weight of paper used for the Catalogues and Reports immediately mentioned was 758,098 lbs., the duty on which was, in round numbers, nearly 4,740*l.* Of the small Official English, French, and German Catalogues, 305,000 were printed; of the Synopsis of the Contents of the Building, 89,500; of the Popular Guide, 26,000; of the Illustrated Catalogue, 8,250; of the Reports by the Juries, in two different types, 20,550; and of the various smaller publications, such as Hunt's Handbook, Keys to the Catalogues, Priced Lists, &c., somewhere about 30,000. The cost in the different departments, for the price of compositors' labour, engraving, lithography, hot-pressing, binding—is also noticed by Messrs. Clowes. As to the *sale* of the different volumes—Plans, Keys, Hand-books, Guides, Catalogues—the number sold, it may be briefly stated, was 473,731, realising 19,014*l.* 8*s.* 4*d.*—a sum which, we have grave doubts, will prove anything but an adequate return to the spirited Contractors for their immense outlay.

EXTRACT FROM THE FIRST REPORT OF THE ROYAL COMMISSION.

Catalogues.—It was obviously necessary that a complete and accurate Catalogue should be made of the articles exhibited, not only for the use of visitors, and of the Commissioners, Jurors, and others during the continuance of the Exhibition, but also as an enduring record, in the most perfect shape, of the Exhibition itself. The Commissioners considered that these advantages would be best secured by submitting to public competition the exclusive privilege of preparing and selling the Official Catalogues. Of these the cheaper one was, in accordance with the conditions of tender laid down by the Commissioners, to be sold to the public at the price of one shilling, and to contain not less than 320 pages of foolscap quarto (printed in double columns). Out of the above sum a royalty of twopence per copy was to be paid to the Commissioners.

In addition to the Shilling Catalogue, an Illustrated Catalogue (also official), extending to two or more volumes, was to be produced, the price and manner of printing of which was left to the discretion of the contractors. An option of preparing more editions than the two above mentioned was also given.

The Commissioners adjudged the right of printing and sale of these Catalogues to the joint tender of Messrs. Spicer Brothers and Messrs. Clowes and Sons, who offered the sum of £3,200 for the privilege (besides the royalty payable on the sale of the small Catalogue). The difficulties necessarily attendant upon the execution of the engagements entered into by the Catalogue contractors (owing not only to the extensive nature of the undertaking itself, but also to the changes consequent upon the continual arrival of additional articles from foreign countries for a long period after the opening of the Exhibition) were surmounted by them in a very satisfactory manner, and the volumes that accompany this Report will serve to show, both by their accuracy, completeness, and their general execution, that the Commissioners have every reason to be satisfied with their having intrusted the preparation of the Catalogues to Messrs. Spicer and Clowes.

Appendix No. XXVII. contains a statement furnished by the contractors, showing the extent of the sale of the different Catalogues, and other works illustrative of the Exhibition, which they were authorized to sell in the Building.

Statistics of the Catalogues, extracted from the Appendix to the First Report of the Royal Commission.

Trades necessary for the production of the Catalogues.

Type-Founders.
Printers' Joiners.
Iron-Founders.
Paper-Makers.
Wholesale Stationers.
Letter-Press Printers.
Printing-ink Makers.
Composition-roller Makers.
Engravers on Wood.
Lithographic-Printers.
Hot-Pressers.
Bookbinders.

Type-Founding. The first step towards the mechanical production of the Catalogues was the preparation of type on a scale commensurate with the magnitude of the undertaking. Two sizes were selected—one for the Small Catalogue and the French and German translations; the other for the Illustrated Catalogue. Of each of these types it was estimated that not less than six tons would be required; making a total of twelve tons, to be manufactured within the short space of six weeks.

As these works progressed, a larger supply was found necessary. New works illustrative of the Exhibition were contemplated: and the supply of new type was eventually increased to 37 tons, in addition to the usual resources of the house. The cost of this large quantity of type and other necessary material amounted to above 6,000*l.* And adding the quantity required for the Report of the Commissioners and for the Jury Reports, a weight amounting to nearly 48 tons was set apart for the service of the Exhibition of 1851.

The following Table shows the Quantity and Value of New Type manufactured, and used for each Publication:—

TITLE OF WORK.	Weight in lbs.	Number of Types required for each Work.
Small Official Catalogue—English –	5,664	3,877,008
Ditto Ditto French –	5,712	3,907,864
Ditto Ditto German –	4,604	3,103,460
Synopsis of Contents of the Building	425	202,400
Ditto Ditto French –	425	202,400
Popular Guide – – – – – –	584	210,944
Index to Official Catalogue – –	2,780	1,555,710
Priced Lists – – – – – –	5,376	4,199,062
Hunt's Hand-Book – – – – –	4,114	2,301,120
Plans of the Building equal to – –	105	225,888
Key to the Catalogue – – – –	31	19,200
Illustrated Catalogue – – – –	28,210	17,315,120
Reports and Awards by the Juries (large type)	30,107	11,513,336
Ditto Ditto (small type) –	14,124	8,903,290
Report of Commissioners – – –	3,752	1,824,084

The printers of the Catalogues are type-founders as well as printers, and by working night and day, with relays

Edinburgh, and the respective firms of Besley, Caslon, and Figgins, of London, supplied the remainder.

As an illustration of the amount of type in use in the various publications, it may be observed that the combined quantity would be equal to the printed surface of 116 single *Times*' newspapers.

A great subdivision of labour is necessary in the manufacture of type: the persons employed are usually in the proportion of 5 men to 3 boys. The following statement shows the weight of four descriptions of type manufactured in one week by 20 men and 12 boys, and the number of separate types in each quantity:—

360 lbs.	Small Pica,	equal	124,720	separate types.
240 „	Bourgeois,	„	122,880	„
190 „	Brevier,	„	113,280	„
168 „	Minion,	„	109,200	„

Although type is much lower in price now than it was some few years back, it is still an expensive article, not so much from the cost of the raw material—a compound of lead, antimony, and tin—as from the amount of labour necessary for its production, five operations being required to complete a single type; while, from its natural softness, and the heavy pressure of the machine in printing, it soon wears out. In the case of the small English Catalogue, from the large number of copies printed, the value has been deteriorated at least 60 per cent.

The price of type varies according to its size; each page of the small English Catalogue cost 20*s.* 6¾*d.*, and of the Illustrated Catalogue 21*s.* 9½*d.* Large as these prices may appear, they are exceedingly low when compared with the average market price, and are such as could only be obtained by contracting for the manufacture of large quantities.

Paper.—The manufacture of paper includes a variety of processes—from the sorting of the rags to the production of a complete sheet of paper. Two sizes only were necessary, described as super-royal and double-foolscap: the folding of the sheet into 4, 8, and 16, forming the different-sized books. For the convenience and economy of printing the small Catalogue, the double-foolscap was, however, made into four sizes, the sheets folding into 8, 12, 16, and 24, leaves. The Synopsis, consisting of 96 pages, was printed on one of these large sheets, at one impression. The entire quantity of paper manufactured was 338 tons: and its production required labour equal to 338 hands (men and women) for three months. Messrs. Spicer Brothers (Wholesale Stationers), joint contractors in the production of the Catalogues, supplied the whole of the paper; and so efficient were their arrangements with the various mills engaged in its manufacture, that not a single failure occurred in the appointed times of delivery.

The small Official Catalogue, with its cover, before the edges were cut, weighed 1 lb.; the duty on each copy was therefore 1½*d.*, or ⅛th the selling price: equal to 12½ per cent. on the cost of the Catalogues, but 21 per cent. on the manufacture of the paper.

Compiling and Printing.—The Catalogue Forms issued to the Exhibitors (in order that they might supply their own descriptions of the articles exhibited) were printed in four colours, representing the four great divisions of the Exhibition; on the receipt of those forms they were examined by the compilers, who made such alterations as they considered requisite; determined, to the best of their judgment, the Class to which the article exhibited more especially belonged; and forwarded the returns thus corrected to the printers. On Jan. 30 the first portion of these returns was placed in the hands of the compositors,

article, the presumed Class to which it belonged. Proofs of these returns were forwarded from time to time to the compilers, who examined them as to their general correctness, and returned them to the printer for such emendations as were necessary: these effected, 30 proofs were printed, and forwarded to the Executive; to the editor, who transmitted copies to the various annotators; to the compiler of the small Catalogue, in order that the descriptions might be reduced; and to the French and German translators, for the same purpose of reduction and translation. Ten weeks now had elapsed—the 20th of April had arrived—the whole of the exhibitors' returns received up to that date were in type, amounting to nearly 2000 pages: this mass, however, was still unarranged; and it was not until four days previous to the opening of the Exhibition that any defined plan of classification could be determined upon. The contractors were bound under a penalty to produce a certain quantity of the small Catalogue on the first of May; to effect this within four days seemed almost impracticable. It was originally intended by the contractors that the Illustrated Catalogue should also appear at the same time, but all hope of producing anything more than a specimen Part was abandoned.

The classification, which should have been the labour of literary men, became the task of the operative printer: the type was arranged in 368 slips, each representing a page; slip after slip was taken up by the compositor, and the exhibitors' returns, as numerically distinguished, collected together, until the whole 30 Classes of the United Kingdom were arranged. The same arrangement necessarily took place for the Colonies and Foreign States; for although each State had but one numerical order for all the articles exhibited, they stand in the Catalogue in the respective State in the same order as the 30 Classes of the United Kingdom; upwards of 100 distinct arrangements had to be effected: the classification completed, revises were forwarded to the compiler, to receive the numbers by which the articles were to be distinguished in the Building; 320 pages was the prescribed limit of the small Catalogue, and 368 pages were in type; a further reduction had to take place in the description of the articles exhibited; and it was not until the midnight immediately preceding the opening of the Exhibition that the small Catalogue was finally "ready for press."

The first or specimen Part of the Illustrated Catalogue was also proceeded with on the same principle laid down for the production of the small Catalogue; and on the morning of the 1st of May both these works were on sale in the Exhibition Building.

The printing in itself would have been but a small affair for the number of persons employed, could the matter have been placed before them according to the usual routine of authorship and printing: this, however, was impracticable; and no better plan could perhaps have been suggested than that followed to a most successful termination and through most extraordinary difficulties.

After the opening, additional returns came in. The first edition was found exceedingly imperfect: the superintendents of Classes undertook the examination of the proofs, supplied omissions, and corrected the numerical arrangements; many articles were found in one class that belonged to another; the exhibitors' descriptions had again to be curtailed to make room for additions amounting to 41 pages; and a second edition was produced, with greater labour and exertion than the first.

New returns continued to come in—removals from one class to another were still found necessary, and it was not until a *third* edition was produced, at a cost of labour equal to the two preceding, that a correct Catalogue of the Exhibition could be said to exist.

Under these circumstances it was found impracticable either to produce the Illustrated Catalogue in a complete form, or the French and German translations, until a late period of the Exhibition: and as the labours of the printer did not really commence until within four days of the opening, so neither did they terminate until within four days of the close of the Exhibition.

A detail of the progress of the Illustrated Catalogue would be a repetition of the circumstances connected with the small Catalogue; inasmuch, however, as the larger work is five times the size of the smaller, and the care and attention required more minute, the cost and labour in the printing-office were at least ten times greater.

French and German compositors were employed on the foreign translations. The Exhibition of all Nations, however, had created a demand for foreign papers; and the compositors, knowing that the employment on the Catalogues would not extend over a long period, accepted other engagements; and those works were finally and successfully brought to a close by men who knew not a word of the respective languages: French and German readers, however, were employed to insure correctness. The repeated alterations and transpositions in the English Catalogue created a great amount of confusion in the foreign Catalogues. The same mechanical classification, applied to the English, could not be effected: a number of persons were therefore employed to cut up each return separately, and paste them on sheets of paper under their respective class and country, and again place them in the compositors' hands for reproduction. Of the French Catalogue 146 pages, and of the German 62, were in this manner a second time set up in type.

The time occupied in printing the various works was 216 days. The whole of the other employments necessary for their production were also completed within the same period.

Every alteration in the small Catalogue created a corresponding alteration in the Illustrated Catalogue, and in the French and German translations.

The cost of these alterations, compared with the usual cost for setting up the types, was—

On the small Catalogue as *four* to *one*.
" Illustrated Catalogue as *five* to *two*.
" French Translation as *five* to *two*.
" German Translation as *two* to *one*.

And to this must be added, as an increased element in the expense of printing, the extra amount received by the workmen for night-work, equal to 10 per cent. on the wages paid.

Compositors are paid by the 1,000 for setting up the types; and by the hour for corrections: the complete arrangement of 10,000 types is considered an average day's work for one person. Tabular Statements similar to the Priced Lists are attended with extra trouble, and are paid double the price of other work; and works in Foreign Languages a small increased price per 1,000. From the circumstance of all the types used for the Catalogues being new, the Compositor had an advantage of about 10 per cent. on the day's work.

The hours of attendance are from 8 in the morning until 8 in the evening. When the men are employed during the night they receive extra payment, equivalent to 40 per cent. on their earnings.

To this branch of printing must be added readers and reading boys, in the proportion of one reader and one boy to each 12 compositors.

From the extraordinary number of proofs required during the progress of the Catalogues, four proof-pullers were constantly employed so long as the compositors were at work: 54 reams of paper, equal to 27,864 sheets, were consumed in proofs only.

There are two descriptions of machines employed in printing: the cylinder machine, attended by one man and two boys, producing on the average 7,000 impressions per day of 10½ hours; and the platten machine, managed by one man and four boys, averaging 4,000 impressions per day. The machinemen and boys are paid by day-work.

Pressmen are paid by the ream of 500 sheets, printed on both sides (or 1,000 impressions), the price varying according to the quality of the work required. Each press is worked by two men: and it is estimated that, on the usual description of printing, two men would produce 1,250 perfect copies of one sheet (or 2,500 impressions) per day. The Illustrated Catalogue was printed entirely at the hand-press, and required so great an amount of care, that 500 sheets, or 1,000 impressions, were scarcely obtained from the men in one day: and of the separate engravings, eight of which were printed on one sheet of paper, but 500 impressions were produced in a day, and, in addition to the men engaged in printing, four men were constantly employed in what is technically called "bringing up" the engravings on wood, preparatory to the printing.

To the Press and Machine Departments must be added persons to wet the paper before printing, and others to dry and press it after printing, and deliver to the binders. The average number of persons employed in "wetting" paper was equal to 6 men for 90 days.

Comparative Power of Production of Hand-Presses and Steam-Machines.—Comparing the press and the cylinder machine, the size of the paper and the quality of the work being the same, the press will produce 1,250 copies and the machine 7,000 in the day, at about the same cost for labour; and comparing the press with the platten machine, the press will yield 1,000 copies, and the machine 4,000, at the same cost; the quality of the work always being in favour of the press.

This high rate of production, however, is only attainable where the number of copies required is large: where the numbers to be printed do not exceed 2,000, not more than one-half these quantities can be obtained on the average; and when less than 2,000 little advantage is gained by using the steam-machine.

The machines, however, have an advantage over the press in size, which doubles, and in the larger machines, trebles the quantity produced; while the press can only print 8 pages of the Catalogue at each impression, some of the machines printed 48 pages at one operation.

Taking the small Official Catalogue as an example:—290,000 complete copies were printed at 15 cylinder machines, in 42 days; it would have required 47 hand-presses 97 days to have produced the same result; or, while 15 machines, with 15 men and 30 boys, produced 7,000 copies of the Catalogue daily, 47 presses, and 94 men, could have produced but 3,000.

The following Table shows the average number of persons engaged in editing, compiling, and printing the various Catalogues, &c.—

Editor – – – – – – –	1	
Compilers – – – – – –	17	
French Translators – – –	2	
German Translator – – –	1	
Annotators – – – – – –	30	
Indexers – – – – – – –	20	
	—	71
Compositors – – – – – –	44	
Readers and Boys – – – –	8	
Pressmen – – – – – – –	32	
Machinemen and Boys – –	55	
Wetters of Paper – – – –	2	
Warehousemen and Boys – –	11	
	—	152

Printing Ink.—The cost of this article forms no inconsiderable item in the expense of printing. The ink used for the Catalogues was manufactured by Messrs. Shackell and Edwards; the quantity required for the small Catalogue amounting to nearly 4,000 lbs.; for the Illustrated Catalogue about 400 lbs.; and the entire quantity consumed on all the works printed for the Exhibition not less than 6,000 lbs. The ink for the Illustrated Catalogue is a fine specimen of black, made purposely for the printing of wood engravings. Printing ink varies much in price, according to the quality: that used for the Illustrated Catalogue is nearly four times the cost of the ink used for the small Catalogue; but as a less quantity of the finer description is necessary to cover the same amount of surface, the comparative increase of price is somewhat reduced.

Engraving.—Three classes of artists are necessary for the production of an engraving—the designer, the artist who transfers the original drawing to the wood-block, and the actual engraver. The designer is usually considered the superior artist, although the elaborate workmanship exhibited on some of the engravings in the Illustrated Catalogue would make this point somewhat doubtful: two, three, and even four weeks having been occupied on a single illustration. Engraving is a profession followed by both sexes: many engravers are also designers; and where this is the case, the highest point of excellence exhibits itself in their productions.

Upwards of *six thousand pounds* have been expended on this department: it would be difficult to form more than an approximate estimate of the number of persons engaged, but as a Supplementary Volume is in the course of preparation,—probably not less than 200, from the commencement of 1851 to the present time.

Lithography. The art of printing from stone also contributed towards the embellishment of the Illustrated Catalogue. The Plan of the Building was lithographed in three colours, and employed a draughtsman 10 days to complete three stones: 96,417 impressions were therefore necessary to obtain 32,139 copies, and was equal to the work of 3 printers for 108 days: 22,187 of the Plans were mounted; this operation employed 6 persons 40 days.

The Prince of Wales' Shield occupied one draftsman 9 days, and the Liverpool Model 6 days, in lithographing; and printing 9,000 copies of the former, and 11,000 of the latter, required 2 men 36 days.

The Kieff Bridge—a beautiful specimen of tinted lithography—employed the artist 14 days. To produce the desired effect, three stones were used; and as each impression was the result of three printings, 6,000 copies employed 3 men 24 days.

When the numbers to be printed are large, *transfers* to other stones can be made: and by this means, with the aid of additional presses, copies can be rapidly multiplied. This process, however, is only applicable to ink drawings, such as the Shield and Liverpool Model; but for chalk drawings, similar to the Kieff Bridge, it is scarcely practicable.

The entire impression of the Kieff Bridge, and the greater portion of the other lithographic illustrations, were executed by Messrs. Day & Son, and the remainder by Messrs. Standidge.

The coloured map of the Geographical View of the Great Exhibition, by Mr. Petermann, was engraved on stone (a process combining despatch and excellence of execution). It was found necessary to refer to at least 150 different maps and books, in order to identify the various localities from whence the contributions to the Exhibition were supplied; and occupied 3 persons upwards of two months in compiling and engraving; printing 7,000 copies (and for which two printings were necessary) occupied 4 men 70 days; and the colouring 6 persons about 50 days.

Hot-Pressing restores the fine gloss and smoothness that the paper originally possessed before printing; and which the wetting and the impression from the type destroys. After the printed sheets are thoroughly dried they are placed singly between highly-glazed thin card-boards, called Pressing Papers, and at certain intervals a hot iron or zinc plate is introduced. When a sufficient quantity has been thus prepared, the *batch* (as it is technically termed) is placed in an hydraulic press of great power, for 8 or 10 hours. In cold pressing the only difference in the process is in the use of cold instead of hot plates. The pressing of 6000 reams employed 4 men and 4 boys for 75 days.

Binding. The services of 12 binders were retained to effect this last operation in the production of the small Official Catalogue; and, by the united efforts of not less than 500 persons, 20,000 copies were sewn and covered in the course of a few hours

The binding of the Illustrated Catalogue was intrusted entirely to Messrs Remnant, Edmonds, & Remnant, and the Messrs. Westley & Co., in addition to the binding of a very large portion of the small Official Catalogues.

Presentation copies of the small Catalogue, and of the first Part of the Illustrated Catalogue, were also prepared for Her Majesty and H.R.H. Prince Albert, on the opening of the Exhibition. These books were elegantly bound, with gilt edges, by the Messrs. Westley & Co., in the short space of six hours.

The division of labour in binding is great: the various processes are performed by men, women, and young persons of both sexes. To complete the small English, French, and German Catalogues—the Priced Lists—Index—and the English and French Synopses—nine operations were necessary for each book; the binding of these various works gave employment to 20 men and 100 women for 80 days.

The Illustrated Catalogue required 17 operations to produce a complete volume: and binding the whole impression afforded occupation to 40 men and 90 women for about 48 days.

reat Exhibition of the Works of Industry of all Nations, 1851.

BY AUTHORITY OF THE ROYAL COMMISSION.

I.

IN THREE HANDSOME VOLUMES, CLOTH LETTERED, GILT EDGES, PRICE THREE GUINEAS,

HE OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

II.

IN ONE VOLUME, CLOTH LETTERED, GILT EDGES, PRICE ONE GUINEA,

SUPPLEMENTAL VOLUME,

aining Additional Illustrations and Descriptions; Index to Introductory Notices and Annotations; and First and Second Reports of the Royal Commission.

III.

IN SIX HANDSOME VOLUMES, CLOTH LETTERED, PRICE TWENTY GUINEAS,

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REPORTS BY THE JURIES;

AND

REPORTS BY THE ROYAL COMMISSIONERS.

PRINTED ON THE FINEST PAPER AND IN THE HIGHEST STYLE OF TYPOGRAPHY.

IV.

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N THE SUBJECTS IN THE THIRTY CLASSES INTO WHICH THE EXHIBITION WAS DIVIDED.

A LARGE-TYPE EDITION OF THE SAME WORK,

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V.

POPULAR RECORD OF THE GREAT EXHIBITION.

HUNT'S HAND-BOOK,

ing an Explanatory Guide to the Natural Productions and Manufactures of the Great Exhibition of the Works Industry of all Nations, 1851. By ROBERT HUNT, Professor of Mechanical Science, Government School of ines. In Two Volumes, price 6s.

VI.

THE OFFICIAL SMALL CATALOGUE.

FINALLY CORRECTED AND IMPROVED EDITION.

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LONDON:
SPICER BROTHERS, *Wholesale Stationers;* WM. CLOWES AND SONS, *Printers,*
CONTRACTORS TO THE ROYAL COMMISSION,
TUDOR STREET, NEW BRIDGE STREET, BLACKFRIARS.

Great Exhibition of the Works of Industry of all Nations,
1851.

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DESCRIPTIVE AND ILLUSTRATED
CATALOGUE.

By Authority of the Royal Commission.

SUPPLEMENTARY VOLUME.

UNITED KINGDOM.—INDIA.—FOREIGN STATES.
INDEX TO ANNOTATIONS.
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LONDON: PRINTED BY WILLIAM CLOWES AND SONS,
PRINTERS TO THE ROYAL COMMISSION,
STAMFORD STREET AND CHARING CROSS.

NOTICE.

Circumstances over which the Publishers of the Official Descriptive and Illustrated Catalogue had no control rendered necessary the publication of that work before the close of the Exhibition. In accomplishing this it was found to be impossible to include in the first edition several very important and valuable illustrations then in the hands of the engraver. It has therefore appeared desirable to publish these in a Supplementary Volume; and, in order to present as complete a record of the event as possible, both in its history, progress, and final accomplishment, to combine with them the Reports of the Royal Commissioners.

A further extension of the Catalogue appeared desirable for other reasons. Applications were received from several of the leading manufacturers and contributors whose works were among the most distinguished and successful, including some of the recipients of Council and Prize Medals who expressed their earnest desire that the objects exhibited by them should be represented, but who, from various circumstances, had previously overlooked the importance of having them engraved and inserted in the Official Catalogues. Certain omissions of the names of contributors in the Indian Department, whose valuable collections had been merged into those of other contributors, required to be rectified. Advantage has therefore been taken of the publication of the Supplementary Volume to correct the descriptions, and place in the position to which they were entitled, the accounts of objects which aided so materially in adding alike to the splendour of the Exhibition and in extending our knowledge of the capabilities of India. The detailed lists of contributions of his Highness the Nizam of Hyderabad and of his Minister, together with those of the Commissioners of Mysore and Cochin, are preceded by much useful information as to the objects forming the collections, and the localities whence they were procured, and which are now for the first time published.

The numerous additional illustrative engravings will, it is hoped, add much to the usefulness and value of the volume. With the intention of perpetuating more permanently the external and internal appearance of the Building, four representations have been added, which show it as seen from the most attractive points of view. The new engravings illustrative of the various Classes into which the objects that formed the Exhibition were divided will be found to consist, in the majority of instances, of those best adapted for representation. Several of the Classes have no illustrations at all; those of Classes IV., V., VI., VII., VIII., IX., X., XVI., XVII., and XIX. are necessarily few, while in Class XXII. they are very numerous, consisting of many of the best examples of metal-working—in bronze, brass, steel, and iron. In Class XXIII. some of the more costly works are figured, illustrative of the art of working in the precious metals by various processes, prominent among which are the results of electro-metallurgy. In Class XXIV. the illustrations show the progress made in the art of glass-blowing, cutting, gilding, and engraving. Many of the best examples of the potter's art will be found in Class XXV. The furniture (Class XXVI.) affords a fair number of illustrations. Classes XXIX. and XXX. supply a few additional ones. The selection of objects for illustration from the Indian Department consists of boats, waggons, palanquins, &c., which are used in the country as means of transit or for the conveyance of produce by land and water. Others are curiously indicative of the habits of the people, their manufactures, and knowledge of ornament, as exemplified by their works in precious metals and stones, carvings in ivory, inlaying, embroidery, and weaving of their textile fabrics. From the Foreign Nave engravings of several articles will be found which adorned the Austrian and Prussian Courts, the Hall of the Zollverein, &c., while France supplies representations of her most unique and artistic works in precious metals. Examples of objects have been engraved from the Sardinian and Spanish Courts, Turkey, and Egypt. The Chinese are represented by their workings in ivory and silver; and the United States of America supply a few illustrations in their agricultural implements.

In addition to the pictorial illustrations, notes explanatory and descriptive have, as in the former volumes, been introduced; and the peculiarities in the construction, mode of preparation, and processes involved in the production of the several specimens have, as far as possible, been supplied. An Index to the Notes and Annotations in the three volumes already published has been compiled.

Where contributors have furnished notices of their establishments, they have been inserted, with a few alterations. The early history of the arts in particular localities have formed the subject of several of the notes. Attention is directed to several hitherto unpublished letters on the early history of steam navigation and locomotion. These are from the pens of Taylor, Symington, and James Watt. The importance of collecting together every scrap of information relative to the development of systems which have now become inseparable from the commercial greatness of the nation, will, it is hoped, form a sufficient apology for the space taken up.

In the Introduction to the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE are detailed, at some length, the early history of the Exhibition—the regulations adopted preparatory to its being opened—and also those to be observed during the period it remained open to the public. The results of this great event cannot fail to be interesting, and the work would be incomplete without some record of such results. The Reports of the Royal Commissioners announce the triumphant success of the Exhibition: they also furnish important data upon which to calculate the cost of, as well as a guide for, future undertakings of a similar kind. Until these Reports were issued to the public, no conception of the amount of labour gone through, the difficulties encountered, and the obstacles surmounted—or the very perfect system of organization adopted, and but for which it would have been impossible to have accomplished the Exhibition of 1851—could be formed. Classified and tabulated returns show the number of packages received from each country, their division into classes, and the amount of money taken at the pay-places. A coloured diagram tells almost at a glance the admissions under different rates of payment, the attendance upon particular days of the week, the external and internal temperatures of the building, with their differences, and the quantity of rain which fell during the period the Exhibition remained open. The ceremonials of the State Opening of the 1st of May, and the final meeting of the 15th October, are also described. The statement of the operation of the Designs' Act shows the early commencement of a movement which has resulted in important amendments of our Patent Laws. No portion of the Reports will be read with greater interest by those interested in the great social question of the day than that which refers to the conduct of the working classes, proving that masses of people may, under fit regulations, be congregated together without danger to themselves or the State. The police returns do not contain a single case of "sedition, of seditious conspiracy, or of unlawful riot:" of the millions of persons who visited the Exhibition, twenty-one only were taken into custody for offences committed within the building. Some curious information will be found in the returns relative to the sale of the Catalogues, and the consumption of refreshments: the economy of waiting and washing rooms is also explained, and carefully prepared balance-sheets are given.

The final arrangements as to the disposal of the Surplus Funds form the subject of the Second Report. The public question as to the necessity for instituting a complete and national system of industrial education, having reference to art, science, and their union with manufactures, is referred to in this Report; and extracts from the Lectures of Warington Smythe and Professor Edward Forbes —the former having reference to the want of mineralogical knowledge, the latter to geological knowledge—are given. An additional incentive to the establishment of similar institutions is also to be found in the very important and valuable information collected by Dr. Lyon Playfair, who states that Prussia, Austria, Saxony, Bavaria, France, and Belgium, are carefully supplying to those who must eventually become the heads of establishments such information as will guide them to sure and successful results. Ten years ago one of the greatest modern statesmen indicated the course which must be pursued in order to meet foreign competition—by which alone we can hope to maintain our present position with advantage against the more æsthetically and more scientifically educated people of the continental cities. "All the facilities of intercourse," he observed, "are operating as bounties to skill and intelligence. They are shortening the distance between the producer and consumer, and it is not safe for us to remain behindhand; for, depend upon it, if we are inferior in point of skill and intelligence or general knowledge to the manufacturers and producers of other countries, the increased facilities of intercourse will result in transferring the demand from us to others."

That which was spoken in 1841 receives its confirmation by the Reports of the Exhibition. A more fitting commemoration of the great event which distinguished the year 1851 could scarcely be imagined than that which is shadowed forth in the pages of the Commissioners' Reports, viz., the institution of a system of industrial education, and the erection of a noble building within whose walls would be collected together all that is best fitted to stimulate and exercise the various faculties of man, and thereby assist in their complete development.

In annexing the Reports to the pages of the Supplementary Volume, it is hoped that an important end will be served.

The publishers have to acknowledge the valuable assistance rendered by Mr. Aitken, in collecting the materials for this Volume.

December 1852.

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Specimens of cut isinglass	Vickers, James	IV.	117	204*
Marine propeller engine, sectional elevation and plan	Stothert, Slaughter, & Co.	V.	4	210
Park phæton and Richmond car	Holmes, H. & A.	—	872	257
Improved four-wheel carriage for invalids, &c.	J. Ward	—	997	261
Views of the great Suspension Bridge at Kieff	Vignoles, C.	VII.	105	321
New propeller for steam vessels	Penrice Lieut., R. E.	VIII.	173	347
Revolving pistol, with lock, &c.	Deane, Adams, & Deane	—	223	353
Group of swords, claymore, &c.	Reeves, Greaves, & Co.	—	244	355
Agricultural implements	Busby, W.	IX.	15	366
	Fowler, J.	—	28A	
Ditto	Reeves & Co.	—	108	374
	Ransomes & May	—	124	376
	Gibson, M.	—	129	380
Ditto	Croskill, W.	—	135	—
	Coleman, R.	—	216	394
	Hornsby, R. & Son	—	233	395
	Smith & Co.	—	234	396
Sections of watches, &c.	Jackson, W. H. & S.	X.	32	411
Group of patent pianofortes	Collard & Collard	—	168	430
Electrotyped ornamental clock-case, with revolving subjects	Walker, John	—	697	472*
Horse and harness, with chased and gilt mountings	Blackwell, S. & R.	XVI.	78	521
Specimens of bookbinding, with emblematical tooling	Westleys & Co.	XVII.	111	544
Specimen of embroidered muslin	Groucock & Co.	XIX.	3	559
Specimen of Honiton point lace	Ditto	—	—	—
Patent kitchener	Flavel, S., & Co.	XXII.	38	596
Patent Alhambra register grate	Stuart & Smith	—	102	603
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Improved kitchen range	Evans, Son, & Co.	—	103	—
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Case of railway-carriage, van, and other springs, files, rasps, &c.	Johnson, Cammell, & Co.	—	109	605
Case of saws and other tools	Spear & Jackson	—	113	606
Drawing-room mantelpiece in or-molu and cleaned iron; register stove in or-molu and burnished steel; and fender in or-molu and burnished steel	Hoole, Robson, & Hoole	—	140	609
Bowie, pistol, and other knives, &c.	Unwin & Rodgers	—	159	611.
Improved kitchen range and tailor's stove	Crook, W.	—	244	620
Boudoir-glass frame	Potts, W.	—	323	631
Case of steel pens	Gillott, J.	—	324	—
Curtain bands and holders, cornice ends, and cornice	Winfield, R. W.	—	373	639
Child's ornamental cot, in cast brass, with drapery	Ditto	—	—	—
Elizabethan and tent bedsteads, and rocking or lounging chair	Ditto	—	—	—
Dorothea lily-bracket, fitted for gas	Ditto	—	—	—
Ionic bedstead, in brass, portable bedstead, and arm-chair	Ditto	—	—	—
Bracket chandelier, in the cinque-cento style, supported by figures	Ditto	—	—	—
Elizabethan chandelier, in bronze, ornamental enamelled shades	Ditto	—	—	—
Or-molu chandelier, with basket-work, foliage, birds, and figures	Ditto	—	—	—
Bronze candelabrum and moveable gas stands	Ditto	—	—	—
Four-post brass bedstead, in the renaissance style	Ditto	—	—	—
Patent economic cooking apparatus	Goddard, H.	—	380	640
Drawing-room register grate and fender	Yates, Haywood, & Co.	—	384	—
Polished steel stove, with or-molu mountings	Featham, Miller, & Co.	—	686	666
Sportsman's knife, with 48 blades, &c.	Rodgers & Son	—	690	667
Powder and pistol flasks, and shot-pouches	Dixon & Sons	—	797	669
Ornamental cast-iron mantelpiece, with grate and fender complete	Robertson, Carr, & Steel	—	802	670

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Coats of arms in cast iron	Kennard, R. W., & Co.	—	804	—
Coat of heraldic arms in cast iron	Ditto	—	—	—
Candelabrum-epergne, wine-cooler, claret-jug, flower-vase, &c.	Elkington, Mason, & Co.	XXIII.	1	671
Vase in silver, emblematical of the great Exhibition	Ditto	—	—	—
Electro-silver tea service, arabesque	Ditto	—	—	—
The Hours—a clock-case in electro-bronze	Ditto	—	—	—
Hamiltonian vase, inkstand, wine tankard, and salt-cellar	Ditto	—	—	—
Silver candelabrum-epergne, with crystal glass, and plateau	Dixon, J., & Sons	—	38	679
Electro-plated tea service	Ditto	—	—	—
Large partly-gilt silver wine flagons	Lambert & Rawlings	—	102	690
Equestrian statue of Queen Elizabeth, in silver	Morel, J. V., & Co.	—	117	693
Bouquet of diamonds and rubies	Ditto	—	—	—
Etruscan vases	Davis, Greathead, & Co.	XXIV.	15	699
Enamelled jug and goblets, in blue flint-glass, engraved and gilt	Bacchus, G., & Sons	—	19	—
Candelabrum in cut crystal glass, table candelabra, lustres, &c.	Osler, F. & C.	—	20	700
Specimens of Bohemian glass	Harris, Rice, & Son	—	21	—
Part of china service, presented by Her Majesty to the Emperor of Austria	Minton, H., & Co.	XXV.	1	709
Large wine-cooler	Ditto	—	—	—
Triangular basket, presented to the Emperor of Austria	Ditto	—	—	—
Centre-basket, with figures in parian representing the Seasons	Ditto	—	—	—
Large porcelain vase, with or-molu mountings	Ditto	—	—	—
Group in parian—"The Return from the Vintage"	Copeland, W. T.	—	2	711
Specimens of porcelain	Ditto	—	—	—
Enamelled Armada bottles	Ditto	—	—	—
Specimen-plate of porcelain	Daniell and Co.	—	23	724
Large porcelain wine-cooler	Ditto	—	—	—
Puck and his companions	Rose & Co.	—	47	727
Porcelain epergne and other articles	Ditto	—	—	—
Grand epergne, lotus vase, &c.	Ditto	—	—	—
The Pleiades adorning Night	Ditto	—	—	—
Carved oak chimney-piece	Wynne & Lumsden	XXVI.	19	731
Jewel-caskets, &c. in or-molu	Wertheimer, S.	—	177	746
Papier-maché table, chair, stool, Victoria Regia cot, and tea tray	Jennens & Bettridge	—	187	748
Papier-maché pianoforte, music-stool, and Canterbury	Ditto	—	—	—
Saloon commode of English buhl, inlaid with tortoiseshell	Pratt, S.	—	196	750
Decorative paper-hangings	Woollams, W., & Co.	—	309	757
Ditto	Ditto	—	—	—
Elaborately ornamented crozier, silver-gilt and enamelled chalice, and communion plate	Hardman, J., & Co.	—	532	761
Lady's dressing-case, in walnut-wood, &c.	Leuchars, W.	XXIX.	44	791
Group of parasols, sticks, &c., with ornamented handles	Sangster, W. & J.	—	136	797
Group of bows, quivers, fishing-rods, nets, and fishing-tackle	Ainge & Aldred	—	180	800
Specimen of carving in wood	Wallis, T. W.	XXX.	89	825
Candelabra in imitation marble, inlaid with glass mosaic	Stevens, G. H.	—	158	830

BRITISH COLONIES AND DEPENDENCIES.

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Hackery, or carriage for carrying cotton		India	V.	907
Carriage for ladies, from Lahore		Ditto	—	—
Model of a keron, or Mahratta carriage		Ditto	—	—
Cheeta, or hunting leopard, and car		Ditto	—	—
Palanquin for conveying travellers		Ditto	—	—
Well, with bullocks drawing water, as practised in India		Ditto	VII.	909
Model of a cargo-boat used on the Ganges		Ditto	VIII.	911
Camel-saddle and mounted gun, from Lahore		Ditto	XVI.	916
Camel-saddle, from Lahore		Ditto	—	917
Vessels in iron, inlaid with silver		Ditto	XXII.	919
Saddle and bridle, ornamented with gold, silver, and jewels; and various other articles		Ditto	XXIII.	—
Group of Maltese vases	[illegible]	Malta	No. 30	918

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Eve, Circassian slave, and Innocence, statues in marble	Monti, R.	Ditto	746	1044
Colossal group in zinc and bronze, representing an Amazon attacked by a tiger	Kiss, Professor	Prussia	279	1065
Carved ivory tankard	Schulz, L. W.	Ditto	811	1095
Carved walnut-wood sideboard	Fourdonois, A. G.	France	1231	1236
Shield, representing the Murder of the Innocents	Moutier Le Page	Ditto	1364	1241
Phryne, and girl with butterfly, statues in marble	Pradier, J.	Ditto	1407	1243
Bracelets and other ornaments	Rudolphi, M.	Ditto	1465	1246
Artistic bronze clock and cup	Vittoz, —	Ditto	1530	1250
Snuff-boxes and cigar-cases	Gueyton, A.	Ditto	1619	1254
Swords and dagger in oxidised silver	Ditto	Ditto	—	—
Ornamented ebony book-case	Barbedienne & Co.	Ditto	1709	1258
Large ornamented pipe-bowl in talc	Strauss, J.	Sardinia	80	1305
Pipes and marpitches, ornamented and gilt	Avedik	Turkey	1709	1397
Velvet saddle, saddle-cloth, &c., embroidered with gold	Sadik Aga	Ditto	1722	—
Sledge made at the School of Arts, Jassy	Minister of Commerce	Ditto	1794	1398
Carved ivory chessmen	Hewett & Co.	China	9	1421
Carved ivory ball, containing 15 other balls	Rawson, C.	Ditto	27	1424
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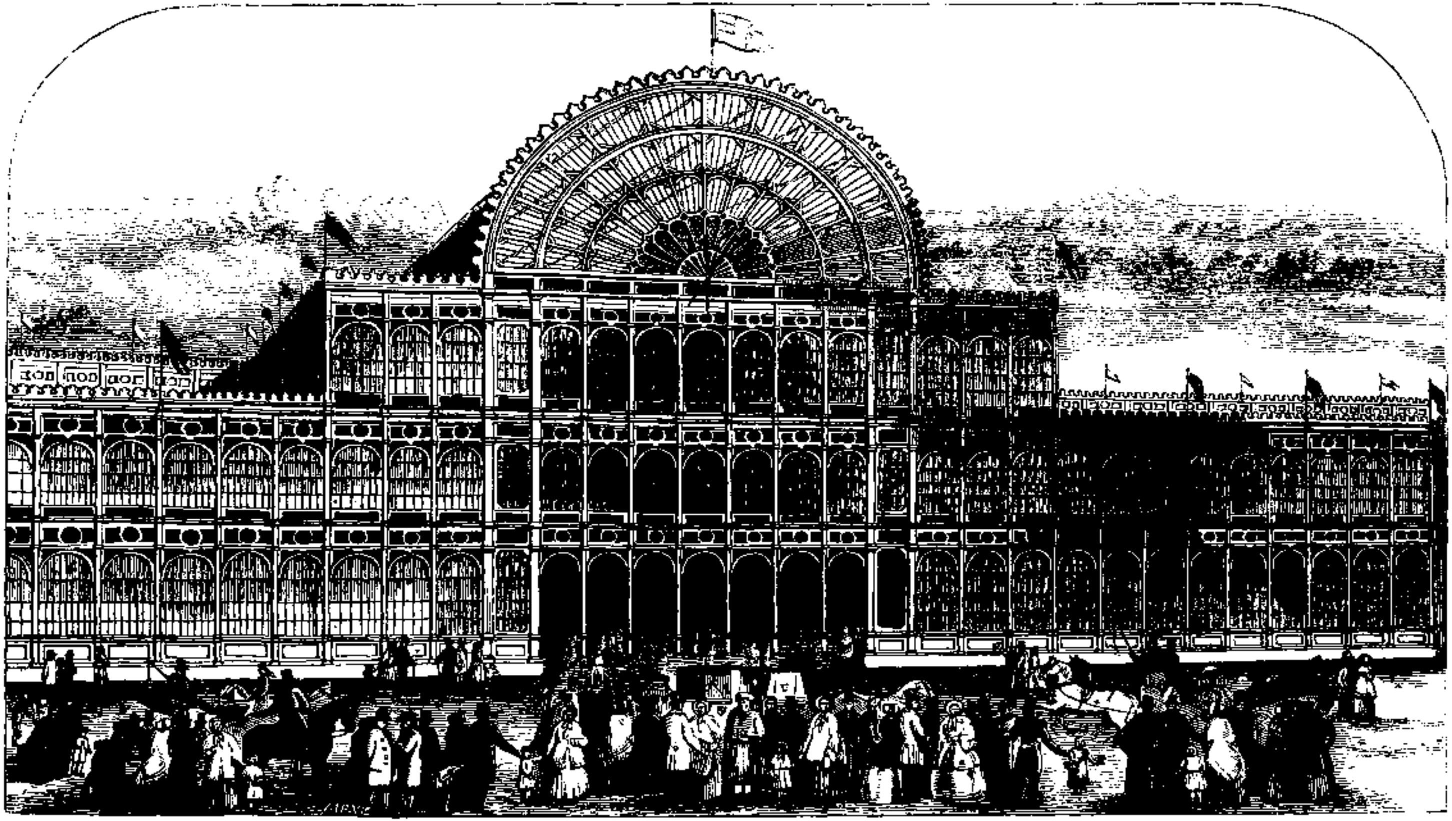
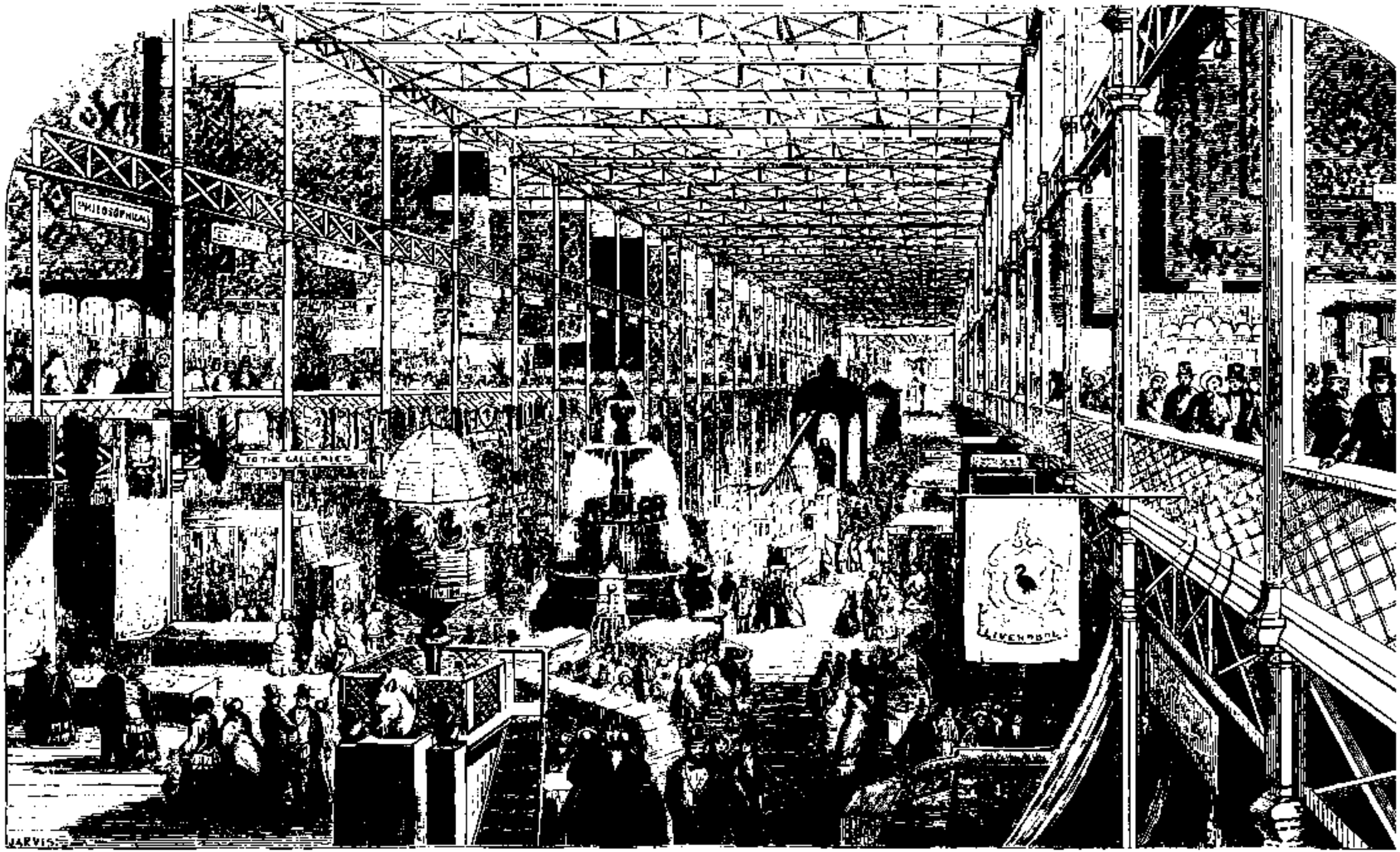


342. VIEW OF THE GRAND ENTRANCE TO THE EXHIBITION.



332. VIEW OF THE BRITISH NAVE.

VIEWS ILLUSTRATIVE OF THE EXHIBITION.

SOUTH TRANSEPT,

Or Principal Entrance to the Exhibition, with Shepherd's Electric Clock.

Plate 342.

Situated nearly opposite the Prince's Gate, the elevation in the accompanying illustration shows the principal or grand entrance to the Exhibition. At the height of 68 feet from the ground the circular roof of the Transept was sprung: it formed half of a circle 72 feet in diameter, and therefore gave to the building at this point a height of 104 feet; and, by the additional elevation and variety of outline it produced, served materially, by contrast, to break the otherwise uniformly parallel lines of the Crystal Palace. The half circle, divided by arms or beams radiating from the centre to the circumference, which structurally strengthened and supported the roof of the Transept, was taken advantage of and formed into a dial, upon the face of which the hands propelled by the electric clock of Shepherd told the hours and minutes as they passed. The shaded arches in the lower parts of the building indicate the vestibule into which the visitor entered, and wherein the pay-clerks were seated at their various turn-tables. Round this vestibule, to the right and left, were grouped the offices of the Royal Commission, the Executive Committee, and those of the various Class officers. The ornamental iron railing which surrounded the building is not introduced, as the intention is to show he structure as fully and completely as possible.

WESTERN OR BRITISH NAVE,

Looking from West to East, embracing a View of Chance's Lighthouse, Seeley's Fountain, Ross's Telescope, the Coalbrook Dale Cast-iron Dome, and other Objects.

Plate 332.

The view from this point in the building was one of the most magnificent which could be imagined. The eye here looked down a vista of not less than 1,800 feet, and the distance was rendered apparently still greater by the judicious application of colour in the decoration of the interior. The delicate blue introduced gradually assumed that of a haze, and became more indistinct as it receded from the eye, thereby adding materially to the vastness and extent of the building. The more prominent objects visible in the centre of the Nave here are the busts and colossal head of a horse, deposited by the electro process, and contributed by the Messrs. Elkington; the revolving lighthouse top, constructed on the principle of Fresnel by the Messrs. Chance; the artificial stone fountain of Seeley; the bridge models; the church model, in terra cotta; the telescope of Ross; the dome of the Coalbrook Dale Company; Bell's statue of Shakspere; and the spandrel of Hereford Cathedral, modelled by Cottingham. At the extreme end of the Foreign Nave the view is terminated by the organ of Gray and Davison, surmounted by the star-bespangled banner of the United States of America, to which the space under it was appropriated. A considerable amount of magnificence was imparted by the suspension from the upper girders of rich carpetings and tapestries—those near at hand were of British manufacture. In the Galleries to the right were displayed specimens of the horological art, works in precious metals, lace, ribbons, and embroidery; underneath the Galleries, textiles of a more substantial kind, hardware, agricultural implements, &c. The Galleries to the left were devoted to the exposition of philosophical and musical instruments, manufactures from animal and vegetable substances, glass, and china; underneath were arranged carriages, machinery in motion and at rest, also leather, skins, mineral manufactures, and specimens of bookbinding: objects illustrative of the Fine Arts were displayed in a Court which bore their name. From the fronts of the Galleries, down the long perspective, banners were projected, which bore upon them the arms and mottoes of the several towns over whose contributions they hung. Red drapery, introduced behind the ornamental cast-iron work in the Galleries, lighted up the appearance of the interior without offending by its glare. A stream of light midway down the building indicates the position of the Transept, with its unobstructed light-admitting semicircular roof.

TRANSEPT AND CRYSTAL FOUNTAIN,

AND EMBRACING VARIOUS OBJECTS IN THE NORTH TRANSEPT.

PLATE 349.

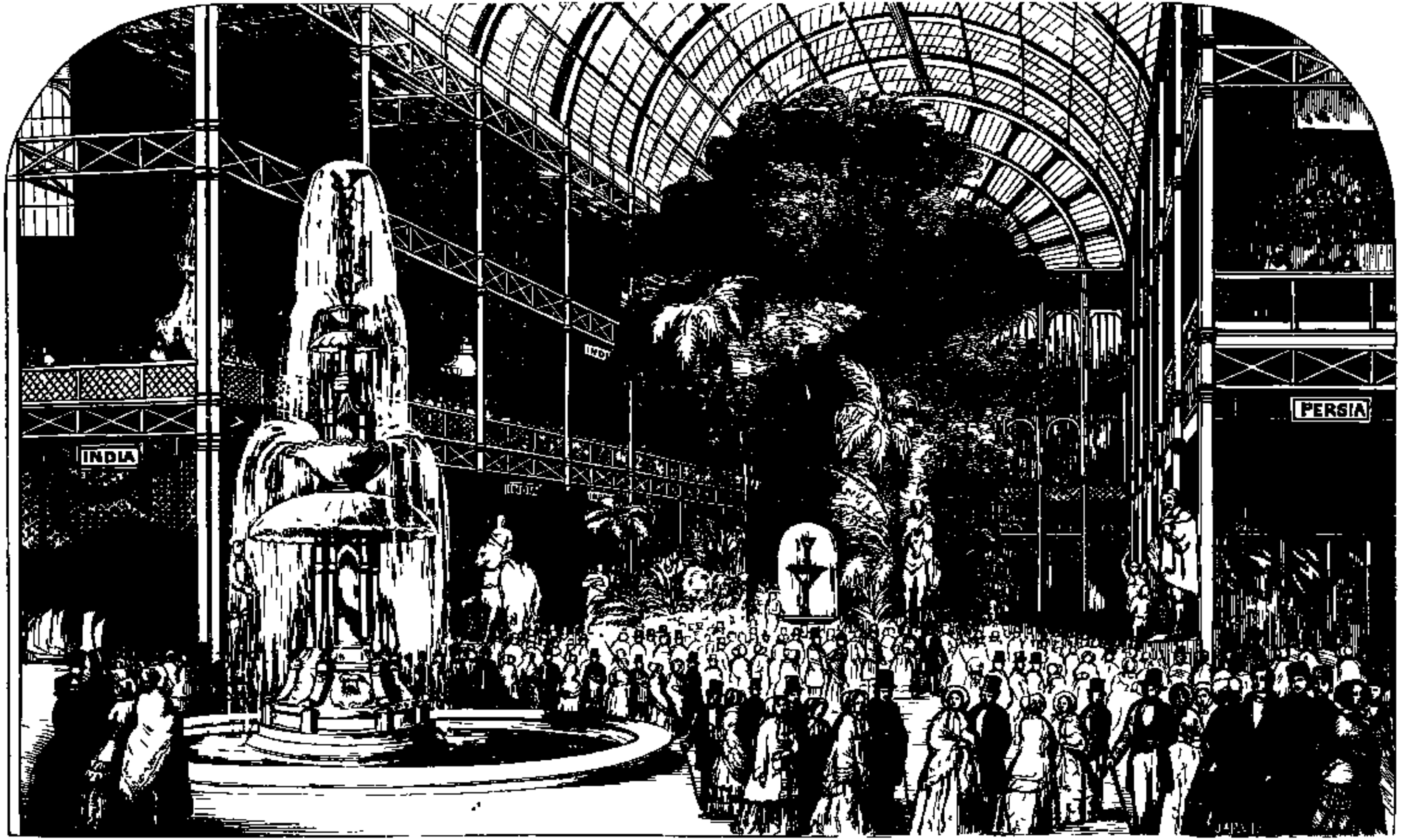
The view of the Transept given is that which presented itself immediately after entering the building by the grand entrance, and passing through the iron gates of Messrs. Cottam and Hallen. This was one of the most splendid points of view in the Exhibition, from the assemblage of objects there brought together, and from the building at this point presenting a favourable opportunity of examining its structure in connection with its gigantic proportions. Here the roof rose with its arched top to the height of 104 feet, with numerous fountains sending forth their refreshing showers—among which Osler's was the most conspicuous. India, Persia, and China, at the angles which formed the connection between the Naves and Transept, had there concentrated their rich stores of natural materials—specimens of native workmanship, which dazzled by their brilliancy of colour and richness of fabric, and excited admiration by the care displayed in their production and ornamental treatment. Statues and groups of sculpture also lent their charm to the influences of the spot—conspicuous among which were the equestrian statues of Her Majesty the Queen, His Royal Highness Prince Albert, the statues of Lord Falkland and John Hampden, the Eagle Slayer of John Bell, Youth at the Stream by Foley, Lough's colossal group of Satan Subdued, Victory preparing to throw the laurel crown to the victor, Engel's group of the Amazons and Argonauts, the Sèvres' portraits on porcelain, the Coalbrook Dale statue of Andromeda, and the Koh-i-noor. This point becomes more interesting from the consideration that here, on the 1st of May, 1851, the very day announced two years previously, Her Majesty the Queen, surrounded by the high officers of state, her ministers, the dignitaries of the church, her veteran warriors, and in the presence of her greatest artists, most skilful engineers, and the chief manufacturers of her realm, with other illustrious men who came from distant countries, received from the hands of the Prince President the Report of the labours of the Royal Commission up to that time, and declared, after thanks given and a blessing asked upon the undertaking, that the Exhibition of 1851 was open to all. Here, also, on the 15th October, 1851, Prince Albert, as President, received from Viscount Canning the Reports of the Jurors, and declared that the work had been consummated, returning thanks to all who had assisted in the greatest enterprise of any period, whether ancient or modern. These associations render the view of the Transept particularly interesting.

EASTERN OR FOREIGN NAVE,

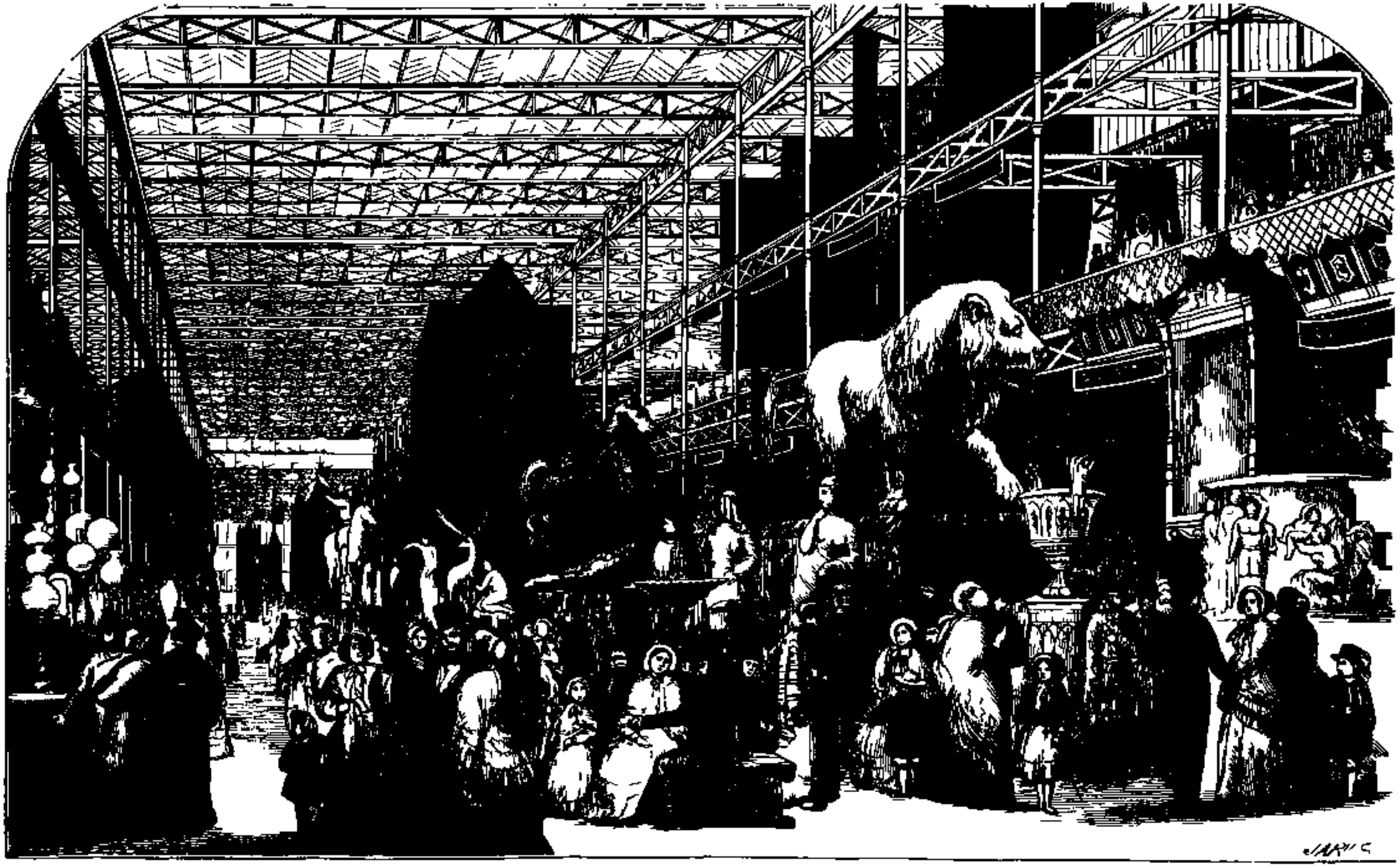
LOOKING FROM EAST TO WEST, COMPRISING VIEWS OF THE LION IN BRONZE BY MILLER, THE AMAZON BY KISS, WITH GROUPS OF STATUARY, ORGAN, ETC.

PLATE 350.

This view represents some important contributions from foreign nations, prominent among which stands the colossal Lion of Miller. It was exhibited as it left its matrix of sand—uncleansed, untouched, and unpolished by the hands of chaser or finisher. In the same foundry were cast the large life-size statues of George of Podiebrad and Libussa, King and Queen of Poland, modelled by Schwanthaler. The Amazon of Kiss from this point was also conspicuous. The kneeling Niobe, after the antique, the two Stags by Rauch, the Boy and Swan by Kalide, all cast in zinc by Geiss of Berlin, were here grouped together. The Window of Bertini, of Milan, on which were displayed the prison thoughts of Dante. Its screen necessarily obstructed the view of many important objects; not so, however, in the case of the equestrian statue of Godfrey de Bouillon by Simonis of Brabant, St. Michael and the Dragon by Duseigneur, the Iron Fountain of Andre, or the zinc statue of the Queen, on its pedestal 21 feet in height, cast by the Vieille Montaigne Company. The French organ terminates the view in the Foreign Nave. On the right and left the Zollverein is indicated with its varied manufactures; then followed Wurtemberg with its amusing display of stuffed animals, and Austria with its porcelain and highly ornate and elaborately carved furniture, its printing, &c. The Netherlands occupied a somewhat limited space. Then, Belgium with its useful products, and France with its varied collection of all the refinements and luxuries of life. Sardinia, Rome, Tuscany, Portugal, Spain, Greece, Turkey, and Egypt terminated at the Transept: corresponding positions to the four last mentioned on the left were occupied by Switzerland, Tunis, Brazil, and China. The Galleries were apportioned here, as in the British division, to the exhibition of textiles, the smaller objects, and those of a more delicate structure. The view does not include the valuable collection of objects from Russia, or the more limited contributions from Denmark and Sweden. The United States, occupying the entire end of the building with their miscellaneous assemblage, are necessarily by their position excluded from this engraving.



VIEW OF THE TRANSEPT AND CRYSTAL FOUNTAIN



VIEW OF THE FOREIGN NAVE

OFFICIAL

escriptive and Illustrated Catalogue.

SUPPLEMENT.

[THE pages quoted in the following SUPPLEMENT refer to the corresponding pages in the Volumes of the ILLUSTRATED CATALOGUE already published. The New Plates will be found at the end of the various additions to the UNITED KINGDOM, INDIA, and FOREIGN STATES respectively.]

UNITED KINGDOM.

Class III.

SUBSTANCES USED AS FOOD.

164 **Mortlock, Miss.**
Specimens of fine English honey.

Class IV.

VEGETABLE AND ANIMAL SUBSTANCES.

117 **Vickers, James**, 23 *Little Britain*—Importer and Manufacturer.

Specimens of Russian isinglass, arranged to form a bouquet. The stems are formed with strips from the leaf isinglass, in its raw state; the flowers and the feather are specimens of cut isinglass in its manufactured state; the ribbon round the stems shows the isinglass in the form into which it is rolled previous to cutting.

The baskets shown in the engraving are entirely composed of isinglass, and are ornamented with flowers of the same material.—P. 204*.—Plate 363.

[Isinglass proper, according to the authority of Dr. Ure, is procured from the tissues of the air-bladders of sturgeons, principally the great sturgeon, which is fished for on the shores of the Caspian Sea and the rivers flowing into it. The preparation of the isinglass in Russia, more particularly at Astracan, consists in steeping the bladders in water, carefully removing the outer coat and the blood which occasionally covers them, putting them in a hempen bag, subjecting them to pressure, softening them between the hands, and twisting them into small cylinders: they are then dried in the sun and bleached with the fumes of burning sulphur. It is extensively used for the clarification or clearing of wines and malt liquors, coffee, &c.; also as a setting for precious stones by the Turks; and by artificial pearl-workers for the attachment of the lustre which completes the likeness to the objects of their imitation.

An inferior description of isinglass is also obtained from fish taken in the Berbice, Demerara, and other rivers of South America, and in the East Indies. Isinglass was formerly manufactured by hand by tearing up or cutting with scissors; it is now, however, rolled and cut by steam machinery.

Russia appears to be the principal country from which supplies the most abundant, and of the best quality, are received; its rivers and seas abound with the fish from which it is taken, and skill in its preparation has been acquired by long practice on the part of those engaged in the operation of curing.—W. C. A.]

"Mr. James Vickers (117, p. 204) exhibits a rich variety of specimens of isinglass, in the different raw states in which it is imported, and in all the stages of its preparation for the various applications for which it is sold. The variety of colours of the different kinds and parts of isinglass is exemplified in elegant forms and arrangements of this material."—*Juries' Reports*, p. 165.

"Mr. James Vickers, for some very finely-prepared Russian isinglass, both in the whole and cut state, which the Jury satisfied themselves was of uniformly good quality."—*Juries' Reports*, p. 67.

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140 **Bevingtons & Sons**, *Neckinger Mills, Bermondsey.*

Specimens of unmanufactured goat and sheep skins from Switzerland and the Cape of Good Hope; kid and lamb skins from Tuscany, and seal skins from Newfoundland.

An assortment of materials used in tanning and leather-dressing, consisting of—

Ground sumach leaf and branch of sumach tree from Sicily for tanning morocco leather.

Oak bark, cork-tree bark, terra japonica, catch, marabolanes, valonia, and divi divi, for tanning hides and calf skins.

Alum, salt, flour, and eggs, for dressing gloving leather.

Cod oil and potash for dressing chamois leather.

Alum and bark for dressing leather for gaiters.

Lime and whiting for preparing parchment.

Salt butter, olive oil, mahogany, beech, and rosewood sawdust, for dressing furs.

Class V.

MACHINES FOR DIRECT USE, &c.

4 **Stothert, Slaughter, & Co.**, *Avonside Iron Works, Bristol*—Inventors and Manufacturers.

Patent combined propeller engine, patented by Edward Slaughter. This system, which has reference only to condensing propeller engines, purports to combine the advantages of a direct-action, quick-working engine, with those of the indirect slow-working engine. In the latter the speed requisite for the propeller is obtained by means of accelerating gearing driving on to a second motion shaft. The new engine claims to avoid the disadvantages of both. It is assumed that, to obtain the best possible form and angle of screw, it is in all cases desirable to give a speed to the propeller shaft unsuited to the vacuum, supply, and bilge pumps, but especially to the former;

and that whereas the required number of revolutions presents no practical difficulty, in those portions of the engine where the passage of steam only is in question, very great difficulty, and an undue amount of wear and tear, as well as loss of power, attach to the rapid opening, closing, and constantly repeated shocks of large and numerous valves required for the passage of water through the vacuum pumps for the process of condensation. So greatly is this difficulty estimated by some of the first naval engineers of the day, that the indirect engine, with its cumbersome and costly gearing, is preferred to the light, simple, and inexpensive direct-action engine, and this preference remains in spite of the very strong prejudice entertained against the employment of gearing in any form on shipboard. Under the present system, direct action to the screw shaft from the steam pistons is obtained, in connection with a reduced speed of the vacuum apparatus, by means of gearing of a lightness proportioned to the fraction of power required. If it be said that direct-action engines are in successful operation, in which the vacuum apparatus is made to work, without difficulty, at the same speed as the steam pistons, it is submitted that the speed, and therefore the angle of the propeller, must be lowered to the speed suitable for the vacuum apparatus; that they do so work at a considerable loss of power, by reason of the unduly large relative capacity of the air pumps, at a much increased ratio of wear and tear of machinery, and, as it can scarcely be doubted, with much greater risk of accident. It will be readily understood that the system must be considered irrespective of the particular arrangement exhibited, which had in view to economise space in the vessel longitudinally; and that cylinders, disposed horizontally or otherwise, are equally applicable, and the horizontal disposition would be adapted for war-steamers. In illustration of the above, the marine condensing engine exhibited (100 horse-power) may be regarded as divided into two parts comparatively distinct one from the other, the steam portion working directly on to the screw shaft with all the simplicity of a high-pressure engine, at a speed of 120 revolutions per minute; the vacuum apparatus, as well as the supply and bilge pump, being made to work at the reduced speed of 40 reciprocations, or about the approved speed of paddle-wheel engines of the same power. It may here be well to state that the relative capacity of the vacuum pumps and the steam cylinders must be calculated in reference to the difference of speed, and that, in practice, the vacuum produced in condensers is found to be as perfect as that in any existing engines. A pair of engines, identical with these, is at work in the Bristol Channel. The system has been proved with equal success in a small experimental vessel, in which the speed of vacuum apparatus is only ¼ instead of ⅓ of that of the steam pistons. The following advantages are claimed. High speed upon the screw shaft, in connexion with slow speed of vacuum apparatus, in the same machine. No reasonable limit to the high speed required for screw shaft, giving facility for securing the best form and angle for propeller. No reasonable limit to the reduction of speed required for vacuum apparatus, with diminished risk of accident resulting therefrom. Saving of power by reason of relatively reduced proportion of vacuum pump, and consequent saving of fuel. The plate represents elevations, and a plan of these engines as applied to river steamers – Pp. 210, 211.—Plate 288.

[No subject has attracted more attention, caused a greater amount of division of opinion, or evolved a more perfect exhibition of the inventive powers of mind, than the application of steam to the purposes of navigation, and the form of the propellers through which that power was to be manifested. As evidence of this, it will only be necessary to state, that from the 17th January, 1816, to 11th July, 1848, not fewer than 500 patents were taken out having reference to the purpose. The majority of these, it is not too much to say, left no impress upon the art they were intended to benefit. By common consent the names of Jonathan Hulls, William Symington, James Taylor, Patrick Millar, Robert Fulton, and Henry Bell, are enrolled as the originators of the system which has now reached, as nearly as possible, perfection.

The first successful application of steam to the purposes of navigation, according to the authority of the majority of dispassionate writers and inquirers on the subject, was made by Patrick Millar, Esq., of Dalswinton, William Symington, of Wanlockhead, and James Taylor, of Leadhills, on the 20th of October, 1758, on the lake which forms a portion of the estate of Dalswinton, Dumfriesshire, at that time in the possession of Millar. The experiment, it is generally understood, arose out of the efforts made by Millar towards propelling vessels of a peculiar construction by means of paddle-wheels, motion being communicated by manual labour. On the occasion of a trial of speed between one of these vessels and a boat belonging to the Custom-house at Leith, Taylor, then a tutor in the family of Millar, took his turn at the wheels: finding the labour excessive, he recommended the application of steam as a moving power. There is, however, reason to suppose that the suggestion on the part of Taylor was not entirely original, as William Symington, then associated with a brother of Taylor, as partner in the superintendence and construction of the lead-works' machinery at Wanlockhead, had, in the year 1786, contemplated the application of steam both to navigation and locomotion, and had supplied to Thomas Gilbert, Esq., M.P., the price of an engine for each of the purposes, viz., to propel a boat or vessel, and also one to propel locomotive carriages to run upon a common road. Taylor's suggestion to Millar was made in 1787: it will thus be seen that Symington had entertained the question one year previously. As the letter alluded to is a document which has only been brought to light within the last few days, and as it contains the views of one of the earliest experimenters on two methods of transit which have done so much towards economizing time, encouraging manufactures, and enhancing the national prosperity, we give it verbatim, as it is something more important than a mere curiosity. It is as follows:—

"*Wanlockhd, 24th Septr.* 1786.

"Mr. Gilbert,

"Sir,—In consequence of my promise of writing you concerning our steam-carriage, I have taken the first opportunity to do it. When I had the pleasure of seeing you, I described the manner of its working I hope to your satisfaction; with regard to the weight of the carriage, it must depend greatly on the size of the engine. A carriage proportioned to an engine whose cylinder is in length four feet, and diameter twenty inches, and calculated to run at the rate of ten miles in one hour, and carry 100 st. burden upon any road on which there is no ascent exceeding one foot in twelve, including coals to serve twelve hours, which will be 30 st. am., and water to serve 3 [30?] miles: the weight of the two managers and every other apparatus will weight nearly 170 stones, amst. If a road in any place exceeds one foot in twelve of ascent, the managers, by slowing the motion of the carrg., which they can easily do in a short time, will increase the power in proportion, and by that means enable it to ascend any piece of road accessible by other carriages, and when the increased ascent is got over, the former motion of the carriage can easily be restored. The carriage runs on four wheels, and can turn a circle of 30 feet diamr. When the carriage comes down hill of any considerable descent, the motion will not be increased by its own gravity, and it can easily be stopt when the manager thinks proper. On descending roads, the engine will use but little water, as a few strocks of it will be necessary to carry the carriage on for a considerable way. On ascending roads, there will be no danger of the carriage running back, allowing an accident to hapen the engine, as the wheels at the back end of the carriage can only move in one direction; and as near as we can estimate the expence of the carriage and engine, will amount to about seventy pounds. But an engine of the same power and apparatus for working boats on canals will only coast about fifty pounds sterling, and will only weight 110 st.; each strock of the engine will have a force equall to 160 st. weight when applied, which undoubtedly will be able to drag a great weight upon water, when we run the proportion between it and what a man can do in a boat with common oars, whose exertion does not exceed more than 7 stones; but this you will be a better judge than we. The engine we propose for working the land carriage is Mr. Watt's, with some very material alterations; and before we can use it we must make an agreement with him, which we intend to propose immediately. But the engine we propose to work boats or ships with is an engine intirely of our own invention, and more powerful and better adapted for the purpose than Mr. Watt's engine —this engine of our own we have presently at worke here in a large moddle, by which we have properly ascertained its power, and found it exceed Mr. Watt's engine nearly two pounds upon each sqr. inch on the piston, without any greater consumpt of coals; another advantage attending our engine is its being little more complicated than the old engine that work with an atmosphere presure. We are to use our endeavours immediately for a patent for this engine as well as our carriage; your assistance, when we get application made, will be of great service to us, and thankfully received by, Sir.

"P.S.—If there is anything farther you would wish to be informed of, please let us know, and we will be happy to communicate every information in our power.

"William Symington.

"*To Thomas Gilbert, Esq., M.P.,*
to be left at the Post-office, Manchester."

Millar, doubtful of the efficacy of steam for the purpose of propelling, at length appears, according to Taylor, to have yielded to his importunity, and it was finally determined that an experiment should be made at the expense of the former. The party selected to do the work was Symington, and after the castings were procured in Edinburgh, Taylor and Symington repaired to Wanlockhead; and there, during the summer of 1788, the engine and fittings were made. The work progressed with the usual amount of speed which characterises all experiments: there were successes and failures; and Millar, anxious like all interested in a new scheme to learn something of of it, writes to and receives from Taylor (who appears to have done the clerkly part of the business) the following reply. It may not here be improper to state, that this and the succeeding letters form a portion of the correspondence between Millar and his fellow-labourers in the work of steam navigation, which, up to the present moment, have not been published, and are to be esteemed valuable, simply as contributions to the early history of the art.

"Dear Sir, *Leadhills*, 20*th August* 1788.

"Yesterday I received yours of the 11th instant. We are very sorry at having disappointed you so far. It is no less a disappointment to us than to you, being equally anxious for the experiment. Our situation, however, rendered it unavoidable. After Mr. Symington's engine was started a number of difficulties occurred, which it was absolutely necessary to get over, as her character depended on her performance. They all arose from bad workmanship, and are mostly now corrected; and she now works in such a manner as to fulfil our expectations, and to justify the character formerly given of her. We have been engaged for some time with your model, and are determined that no obstruction whatever shall come in the way till it is finished. The heavy part of the work is over; but that which follows (the working apparatus) is of such a nature as requires considerable time to fit, so that we could not accurately say at what time it will be finished, but think in the course of two or three weeks everything will be accomplished. If you make any stop at Edinbro', I think we may promise to be ready at your return. You need be under very little apprehension as to any person getting before you in this. It is easy in conversation, but very different in execution. However, as such a circumstance would be equally unpleasant to us to prevent it, you may depend upon the greatest expedition being used. We think the engine may weigh about half a ton; this, probably, will require it to sit in the middle of the vessel. A space of five feet betwixt the axes of the wheels will be room enough for the engine, so that you may place them where you think most convenient, preserving this distance at least betwixt them. If a greater distance is used, it is all one to us, being equally convenient. I would willingly have come down; but as it would retard the work, and I could say no more than as above, we thought it better not to do it at present. The axes of the wheels may be made at both ends one inch square, and six inches within the sides of the vessel.

"I am very happy to learn you got the 'Experiment of Leith' so successfully carried into the harbour. I hope her future adventures will be crowned with a success equal to your wishes; and, sure I am, nothing would afford me greater pleasure.

"I beg leave to be, Sir,
"Most respectfully yours,
"James Taylor."

The "Experiment of Leith," alluded to in the letter, refers to the vessel built by Millar, illustrative of his theory of double ships, as being superior to those built in the ordinary manner, in their buoyancy, stiffness, small draught of water, more extensive accommodation, &c. On the 21st of August, he had again written to Taylor, urging the completion of the work for the steam-boat experiment; who, in his reply, after stating the hours they were working at it, alludes (with something very like alarm) to the fact of some other person having taken out a "patent for driving ships with the steam-engine." The letter is given entire.

"Dear Sir, *Leadhills*, 12*th September* 1788.

"I received yours of the 21st, and, as desired, send this to find you at Edinburgh, where I hope things go as you would wish them. Mr. Symington and I are as busy here as we possibly can be. We work from six o'clock in the morning till dark in the evening, without losing a moment we can use; also, to forward us the more, we have called in the aid of a watchmaker here, who works along with us. We are now in great forwardness, and will not be long of finishing. I could not ascertain to a day when it shall happen, but believe we shall have it at Dalswinton some time before the end of the month. You may, however, depend upon her being transported the moment she is ready. The fixing it into its place will not consume much time, so that I hope we shall be able to answer your expectations without encroaching upon the time you intend to employ other ways.

“We were a good deal surprised to see in our last newspapers, ‘that some person has obtained a patent for driving ships with the steam engine.’ If so, certainly somebody claims a thing they have no title to. I don't believe any man in England entertained the idea till you published it. At any rate I cannot think it should interfere with us, as it will only be for their own method, and not an exclusive privilege. If it is upon the last terms, I think you could find little difficulty in reducing it. I flatter myself we shall yet be the first in motion, and shall venture to say that, though there were twenty others, the method you will see practised at Dalswinton will be the most commodious and elegant of any.

“I beg leave to be, with the greatest respect,
“Dear Sir,
“Your most humble and
“Most obedient servant,
“James Taylor.”

Finally the boat was finished, and removed to Dalswinton, where, on the lake there, on the 20th October, 1788, the trial was made, was completely successful, and Taylor heralded the intelligence of success in one of the local papers. The boat moved at the rate of five miles an hour. It is peculiar to remark that on this trial three individuals who subsequently became distinguished in the literary and scientific history of their age, in addition to the proprietor, Mr. Millar, were on board to hail the new era in the art of navigation. These were Henry, now Lord Brougham, Robert Burns, the poet, and Alexander Nasmyth, the artist, the last of which, it may be stated, served to perpetuate the event by his introduction of the boat into his painting of the landscape. The success of this experiment led to one on a much larger scale, which forms the subject of communication between Mr. Millar and Symington. This was the boat which was tried upon the Forth and Clyde Canal, on the 26th December 1789. The cost of the engine being asked by Mr. Millar, the letter which follows is the result:—

“Sir, *Wanlockhead*, 1st *May* 1789.

“Having taken into consideration what would be the expense of an engine of such size as proposed to be put upon your boat, find, to the best of my opinion, it will come to nearly 250*l*., including the float wheels; and you may depend upon my endeavours to get it as well and cheap done as possible. I think by the 12th current I shall have my affairs so settled here as shall enable me to begin your engine at that time; but as it will be necessary that I see the vessel before I begin to construct the engine, and would also wish if possible, that you would be present, if you are so kind to let me know when you intend to be in Edinburgh, I would endeavour to be there at that time. Waiting your further orders,

“I am, dear Sir,
“Your very humble and
“Most obliged servant,
“William Symington.”

The facilities then (and still) enjoyed by the Carron Company for the production of large castings in metal, their superior tools and appliances, in comparison with the few and imperfect ones at the command of Symington at Wanlockhead, in connection with the proximity of the Carron Works to water, on which the performance of the boat and engine could be tested, induced the transference of the operations from the former place to the latter.

“Sir, “*Wanlockhead*, 19*th May* 1789.

“This day I was favoured with yours of the 17th current, informing me you did not think you would be in Edinburgh before beginning of next week. I am sorry that I am obliged to set out for Carron to-morrow, but if you would inform me when you could meet me at the boat, I should endeavour to be there at time fixed, and the sooner the engine could be got begun the better, as this is the most favourable season for experiments. I observed the letter you enclosed, but am apprehensive it will turn out a mistaken idea.

“I am, dear Sir,
“Your very humble and
“Most obedient servant,
“William Symington.”

An allusion is made towards the end of the letter last given which is not understood, and the subject is not alluded to again in the letter which follows, which announces the arrival of the boat into which the engine is to be fitted. Symington, in the letter, alludes to his having written for Taylor, in order that he might note progress, and become sufficiently acquainted with the fitting and construction of the engine, “and that he may get all the knowledge he can during the erection.” The letter proceeds to say—

“Sir, *Carron*, 24*th June* 1789.

“This day John —— brought up the vessel, which to-morrow will be laid into a dock, which the Carron Company has for their own ships to be repaired in, where she will be very safe during the engine's being put on board. Every part of the work to be done here is getting forward as fast as possible, yet I cannot estimate when we may get everything finished; but you may depend upon it that no time shall be lost. The calculation we spoke of I could not send you by this letter, as before I could make it out so accurately as I wished, there was an experiment necessary to be made, which will only be finished to-morrow. As we will soon begin to put some of the parts of the engine together, I have this day wrote for Mr. Taylor to come to Carron, in order that he may get all the knowledge he can during this erection.

“I am, Sir,
“Your very humble and
“Most obedient servant,
“William Symington.”

The succeeding letter is from Taylor, who had arrived at the Carron, and records how the several portions of the work are in a state of forwardness. It also contains Symington's idea as to the speed which would be arrived at.

“Dear Sir, *Carron*, 24*th July* 1789.

“According to your desire, I send this to inform you of the state of affairs here. Things are forwarding as much as possible, though perhaps not so quick as you would wish. Mr. Symington appears to have paid every attention to expedition, but the multiplicity of business here, and the nature of the thing itself, renders it impossible to push beyond a certain rate. Most of the articles are founded, and are just now preparing for putting together. How much time this and the smith-work may consume cannot well be ascertained at present. I believe, from present appearances, the completion cannot be in less than five or six weeks. The boiler will be finished in two weeks, which will be one good point gained, and tend much to the forwarding of the whole. John Heriot has finished the repairs upon the vessel, and is just now gone to Leith to take off some oak wood for the frame of the engine. He is to return himself to construct it, as he should understand better than anybody else how to place it for the best advantage to the vessel. I told Mr. Symington you wished to know what velocity he expected to be produced. He says he cannot perfectly say as yet, but thinks nine or ten miles an hour; says he will write you more particularly when he has satisfied himself better upon that subject, and begs at present to be remembered to you. With most respectful compliments to Mrs. Millar and all the family, I am, sincerely,

" Dear Sir,
" Your most obedient and
" Most humble servant,
" James Taylor."

The performance of this vessel was by no means satisfactory. The first trial, made in the month of November 1789, disclosed weakness of material and defective construction in the paddle-wheels. New ones were supplied, and on the 26th December following, on a second trial, it was found to be more successful, and a speed of seven miles per hour was arrived at, superior by two miles per hour over the Dalswinton experiment, but not equal to what was anticipated by Symington, as stated in the letter of Taylor, immediately preceding. Mr. Millar, it appears, was not satisfied with the engines as constructed by Symington, as, in a letter addressed to Taylor, he declares these to be the most improper of all steam-engines for giving motion to a vessel. Acting upon this conviction, he appears, in the spring of 1790, to have decided upon applying to Messrs. Boulton and Watt for engines, and offering to associate them in his scheme of steam navigation. This negotiation was opened up by Robert, afterwards Lord Cullen, at the request of Mr. Millar, addressing a letter to Messrs. Boulton and Watt upon the subject. The reply, in the handwriting of Watt, has not previously been published, and is strikingly characteristic of the caution and secrecy which the experience he had gained in the endless contests in which he was then engaged (defending his improvements in the steam-engine) had doubtless fostered into a state of preternatural activity. The allusion to the engines of Symington is amusing, equally so the test applied to them; and while patiently awaiting the issue, it shows he was ready to pounce upon Symington if his engines were successful; if the reverse, to leave them unheeded with an apparently magnanimous indifference. Watt's doubts as to the practicability of steam navigation are peculiar, and show that the most ingenious are liable to error, and that even his own great and comprehensive mind, cognisant as it was of the capabilities of science generally, failed to include within its grasp that which men vastly inferior ultimately compassed and accomplished. In the letter given, another candidate for the successful propulsion of vessels by steam appears in the person of Lord Stanhope, whose pretensions are dismissed in an exceedingly summary manner, " owing to his laying too much stress on his own ingenuity." The letter of the great improver of the steam-engine is as follows:—

" Dear Sir, *Birmingham, April* 24, 1790.

" We have heard of Mr. Millar's ingenious experiments on double ships from Sir John Dalrymple, and also some vague accounts of the experiments with the steam-engine, from which we could gather nothing conclusive, except that the vessel did move with a considerable velocity.

" From what we heard of Mr. Symington's engines, we are disposed to consider them as attempts to evade our exclusive privilege; but as we thought them so defective in mechanical contrivance as not to be likely to do us immediate hurt, we thought it best to leave them to be judged by Dame Nature first, before we brought them to an earthly court.

" We are much obliged to Mr. Millar for his favourable opinion of us and of our engines, which we hope experience would more and more justify. We are also fully sensible of his kind intentions in offering to associate us in his scheme; but the time of life we have both arrived at, and the multiplicity of business we are at present engaged in, must plead our excuse for entering into any new concern whatsoever as partners, but as engineers and engine-makers we are ready to serve him to the best of our abilities, at our customary prices, for rotative engines, and to assist in anything we can to bring the scheme to perfection.

" We conceive that there may be considerable difficulty in making a steam-engine to work regularly in the open sea, on account of the undulating motion of the vessel affecting the *vis inertia* of the matter; however, this we should endeavour to obviate as far as we can.

" It may not be improper to mention that Earl Stanhope has lately taken a patent for moving vessels by steam, but we believe not by wheels. His Lordship has also applied to us for engines; but we believe we are not likely to agree with him, as he lays too much stress upon his own ingenuity.

" We cannot conclude without observing, that were we disposed to enter into any new concern whatever, there is no person we should prefer to Mr. Millar as an associate, being fully apprised of his worth and honour, and admirers of the ingenuity and industry with which he has pursued this scheme.

" Permit me now, Sir, to return you my thanks for your obliging attention to me, and for the trouble you have taken in this affair, and to ask the favour of you to present Boulton and Watt's respectful compliments to Mr. Millar.

" I remain,
" Dear Sir,
" Your obliged humble servant,
" James Watt

" *Robert Cullen, Esq., Edinburgh.*"

Such, then, is the additional light thrown on the early history of steam navigation by documents, with one exception, hitherto not introduced as evidence. In reading these attentively, it is extremely difficult to assign to Taylor any position in the work, save that of introducing to the notice of Mr. Millar a power which he had previously learnt had been, or was about to be, applied to the same purpose by William Symington. His labours appear to be that of superintendent, reporter of progress, and the recorder of the successes in the pages of newspapers and magazines. We find no trace of his having suggested any improvement in engine or boat likely to make either do their work more effectually; but in Symington we recognise the worker: he who saw and remedied each defect, devised new combinations, obviated difficulties gave form and existence to ideas, and thereby materially assisted in producing the first steam-boat. In Mr. Millar we find the high-spirited, liberal, ingenious country gentleman, generous and philanthropic in his dealings, zealous for the advancement and welfare of his country. What better proof of this than that he spent a fortune, not with the ultimate intention of getting gain, but in experimenting on that which was to add to the security of the nation then engaged in war, and also to render yet more perfect our naval architecture, at that period alike our bulwark and our strength? Several of his improvements, among others the paddle-wheel, wedded to the engine of Symington, laid the foundation of steam navigation. The expenses incurred in the several experiments were paid by Mr. Millar. With the year 1789 ended the labours of Taylor, in connection with the subject. In 1796 we find Mr. Millar embarking in a new patent, having also reference to it: of the success attending it there is little if any evidence. Employed by Lord Dundas in 1803, William Symington produced the "Charlotte Dundas," in reality the first practical steam-boat. In it were combined the engine of Watt, working Pickard's connecting-rod and crank, and uniting the same to the axis of Millar's paddle-wheel. Thus Symington brought together for the first time the three important requisites which constitute the present system of steam navigation, and is thereby entitled to be considered the true inventor of steam navigation.

With a too great amount of liberality our countrymen have awarded to Fulton, the American, the merit of originating a system which he only extended, forgetting that his first trial was a failure, and that it was only after having inspected, made drawings, and taken notes and dimensions of a boat constructed by Symington, that he succeeded. Of this Professor Woodcroft, in his "Practice of Steam Navigation," has given excellent and indisputable evidence.

The Americans themselves admit they are indebted to Fulton for the art; and it can easily be proved that his communications with Bell and Millar, and the more complete information gained by the actual inspection and visit to Symington's boat constructed under the patronage of Lord Dundas, supplied the necessary information for the construction of "The Claremont," the first successful steam-vessel which moved on the waters of the Hudson, which was built by Fulton, and was identical with that of Symington, including all the various combinations as given in the description of the "Charlotte Dundas." "Remove these inventions separately or in combination;" says Woodcroft, "nothing will be left but the hull, and that divested of the peculiarity of form which is due to Captain Beaufoy's experiments; but little remains save the hull of a boat of ordinary construction." All that remains for Fulton is simply the credit of tempting a somewhat more extended voyage.

As to the rewards of the three experimenters, Taylor, who evidently did least, secured through influence a pension of 50*l.* per annum, which was extended to his family. Symington, who laboured the most successfully and earnestly, received ONE sum of 150*l.*, which marked the value of the services which the Lords of His Majesty's Treasury (in the year 1825) considered he had rendered. In the decline of life, kind relatives and friends contributed to his support, and, to the honour of Lord Dundas be it spoken, he was of the number; but, for the assistance of these, he who applied successfully steam to navigation might have died a beggar, the inmate of a poorhouse in the country whose mercantile greatness in a measure was to depend upon the speed and regularity introduced by his system. The claims of the family of Patrick Millar, of Dalswinton, are up to the present moment unrecognised.

Sixty-six years after the date of the experiment recorded above, we find the Atlantic bridged by steam ships, and the voyage to Australia accomplished by the same means. Magnificent vessels, propelled by the same power, are constantly being constructed at Glasgow, Liverpool, Bristol, and London; and in the Exhibition of 1851, the firm of Boulton and Watt exhibited a pair of marine engines, thereby proving that "the difficulty in making engines to work regularly on the open sea" can be overcome, though this was doubted by an original member of the firm. The number of steam vessels in the British empire, in 1851, was estimated at upwards of 2,000, and a curious calculation recently made, shows that "twelve Steam-ship Companies possess 100 ships, the united value of which exceeds 3,000,000*l.*; they are propelled by a power equal to that of 30,000 horses; 80,000 tons of merchandize can be conveyed by them in a year; they traverse 2,000,000 miles of ocean; and for post-office service their proprietors receive 750,000*l.* per annum." A philosopher of the present day demonstrated, some fifteen years ago, the impossibility of ever reaching the shores even of America by steam.—W. C. A.

872 HOLMES, HERBERT & ARTHUR, *Derby*—Manufacturers.

Light park phaeton and Richmond car or sporting buggy.

The park phaeton is remarkable for its workmanship, simplicity of construction, and graceful outline, free from unnecessary ornament, and is easily cleaned or repaired. The top fore-carriage and the requisite branch stays are formed of one piece of solid wrought-iron work, and the springs are relieved from vibration by leather braces.

The Richmond car was designed by Mr. Joseph Harvey, of Richmond, and was exhibited as being a well-adapted two-wheeled open vehicle for ladies' use. It is light of draught, easy of ingress and egress, has comfortable and commodious seats, and ample space for luggage.—P. 257. —Plate 364.

997 WARD, JOHN, 5, 6, & 7, *Leicester Square*—
Inventor and Manufacturer.

A four-wheel pleasure-ground Victoria chair, for the use and comfort of invalids; mounted in a square-framed carriage, upon C springs and swell-end elliptics, with a pair of light elbow or body-springs, with loops all in one piece to take the braces, open futchel fore-carriage, may be drawn by hand or animal, noiseless wheels, with patent vulcanized Indian-rubber tires. The body is an entirely new design, whereby the common abrupt square corners are removed, and continuous semicircular lines introduced; thus blending with the lines upon the under-carriage, and tending to produce a unique, chaste, and elegant outline.

A newly-invented invalid recumbent chair, by which a patient may be put into any position without effort: it is mounted upon brass wheels; may be easily moved from room to room; forms a beautiful and elaborate library chair, with a shifting reading-desk, sconces, &c.; and is also adapted for a couch or bed, being stuffed upon the elastic principle. The back may be adjusted to the sixteenth part of an inch, over which the patient has perfect control; it has also a double-action leg rest, for the adjustment of the lower extremities in a similar manner. The elbows are intended to fold at the side of the chair, or to be entirely removed at pleasure; thus giving every facility for moving the patient from the bed to the chair, and *vice versâ*.

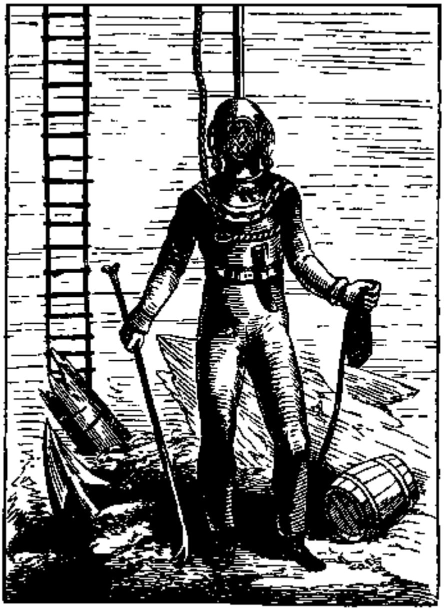
A Spanish mahogany self-propelling chair, mounted upon engine-cut cog-wheels, with silent tires; a centre cylindrical brass guide-wheel behind. This chair is worked by means of handles upon the tops of the elbows connected with the machinery below, and the construction of the whole is so simple, that a child may work it with ease, it is valuable to persons afflicted in the lower extremities: for passive exercise, and to sufferers from abdominal congestion, or other chronic disorders; it is made portable for travelling, and is so constructed that it may be taken to pieces and put together again by an inexperienced person. This chair is now the property of Her Imperial Majesty the Empress of Russia.—P. 261; and see also CL. 26, No. 279, p. 756.—Plate 353.

Class VII.

CIVIL ENGINEERING, ARCHITECTURE, &c.

53 **Heinke, Charles E.**—Inventor and Manufacturer.

Patent submarine helmet, dress, and apparatus, for examining and repairing of ships' bottoms, at sea or in dock, the recovery of property from sunken vessels, and for making and repairing the foundations of viaducts and harbours.—P. 308.



[The submarine helmet is by no means a modern invention. In one of the oldest editions of Vegetius (a writer on the military art, who lived about the year A.D. 285), there is added by the editor some illustrations, of which no mention is made in the body of the work. Among these is represented a mode of catching fish at the bottom of the sea. The apparatus for the purpose apparently consisted of a cap fitting very closely to the head of the diver, so much so that no water could find access. From the cap there ascends a leathern tube or pipe, which floated on the top of the water, and through which was furnished the supply of air. In the "Philosophical Transactions" of 1717-1721, Dr. Halley is recorded as having invented a cap made of lead, which covered the head of the diver, had glass inserted in front, and contained as much air as would enable the diver to exist two minutes under water without a further supply, which, when required, was received from the diving-bell in which he had descended. Connection with the bell was maintained by means of a flexible tube, closed with a valve.

Another form of apparatus for the purpose was invented by a gentleman of Devonshire: it consisted of a huge case of leather, perfectly air-tight, which would hold half a hogshead of air, and adapted to the legs and arms, with glass in the anterior part. When put on, the inventor walked about with ease at the bottom of the sea, could go into the cabin of a sunken ship, and deliver out the cargo. He is stated to have acquired alike fame and fortune. A more complete covering, amounting almost to a suit of aquatic armour, was invented by a M. Klingut, about the year 1798; it was made of tin plate, and enclosed head and body. A pair of water-tight drawers of leather buttoned on the metal part where they joined, and were made tight by brass hoops; from the upper part rose two flexible tubes, one for inhaling pure, the other for the escape of the vitiated air. The body was kept down by weights.

Submarine dresses and helmets, by the improvements in the material of which they may be made, are now in very general use where operations under water are being carried on.—W. C. A.]

105 **Vignoles, Charles**, 4 *Trafalgar Square*—Designer.

Model of the wrought-iron bar-chain suspension bridge at Kief, now erecting across the river Dnieper by command of His Imperial Majesty the Emperor of Russia. Its length is about half an English mile, and breadth 52½ English feet. The area of the roadway is 140,000 superficial feet.—(Central Avenue.)

Every part of the model is in exact proportion to the original bridge. The scale is 1 inch to 8 feet, and the model was made by Jabez James, of 28A Broadwall, Stamford Street, London.

The bridge, of which this is a model, is the largest work of the kind hitherto executed; the chains on the right or Kief side of the Dnieper are moored in an isolated abutment, built in the river, at a sufficient distance from the shore to allow vessels to pass. This is effected by a drawbridge, 52½ feet broad, spanning an opening of 50 feet. The supports are hollow beams of wrought iron, about 130 feet long; the drawbridge revolves in one leaf, and centres like a railway turn-table; the counterpoise required is very small. The whole weight of the drawbridge is about 150 tons.

The four principal suspension spans are each of 440 English feet; each chain extends over the five river piers and through the two abutments, and is more than half an English mile long. The platforms are suspended from the chains by wrought-iron rods of two inches diameter; the roadway is made peculiarly stiff to resist the various strains to which it is liable.

The total quantity of iron employed in constructing the bridge, including the machinery used, is 3,500 English tons (3½ millions of French kilogrammes, 78,000 German centners). The whole was manufactured in England; the chains by Fox and Henderson, Birmingham Sixteen vessels were employed in transporting the iron from Liverpool to the port of Odessa, whence it was conveyed on bullock carts to Kief, a distance of 400 English miles.

The channel of the river Dnieper at the bridge is about 35 feet deep in summer; but the spring floods increase the depth to 50 and sometimes to 55 feet.

Eight coffer-dams were required for getting in the foundations; and ten steam-engines were employed on the works, two being of 50-horse power each.

The foundations are on piling and concrete; the piers and abutments are brick, faced with granite; about 1,000 tons (English) of granite ashlar are inserted in each abutment as an extra mass for the mooring-plates of the chain to bear upon.

The granite was brought across a country, destitute of hard roads, from a distance of nearly 100 English miles. The hydraulic cement employed is prepared artificially, according to the system pointed out by the celebrated French engineer, Vicat.

Cost of the bridge about 400,000*l*. sterling. Time of building will have been about five years; but from the climate and other circumstances not more than 100 working days in each year could be calculated on for the principal and more difficult parts of the work.

The whole of the piers and abutments were brought to the level of the roadway in the summer of 1851; two of the river piers were also carried to their full height; and the bridge will be completely finished in the autumn of the present year (1852).—P. 321.—Plate 365.

[Suspension bridges of iron were introduced about the year 1741, at which date one of 70 feet span was thrown over the river Tees. Scamozzi, "Del Idea Archi," published 1615, conveys some notion of these structures; but Bernouilli first explained their true principles. The Union Bridge over the Tweed, 449 feet span, constructed by Captain Sir S. Brown in 1820, was the first large bar-chain bridge erected in Britain. The Newhaven and Brighton suspension piers were also erected by the same engineer. The great bridge by Telford across the Menai Straits is 570 feet span; it was commenced in May 1819, and completed in December 1825. The Hammersmith Bridge, 422 feet span, by Tierney Clark, was completed in 1824. The Montrose Bridge, by Rendel, 412 feet span, was erected in 1829; and the Hungerford Bridge, over the Thames, 676½ feet span, by Brunel, was built in 1844. The wire-rope bridge at Frieburg is 820 feet span. The roadways of suspension bridges must not merely be hung from the chains, but be rendered stiff to resist the undulatory motion caused by the wind.—See Minutes of Proceedings of the Institution of Civil Engineers, February 16, 1841, on this subject.—S. C.]

[The antiquity of suspension iron bridges is proved by travellers in India and Thibet, who have seen them there in construction much resembling our own; in one instance the chains which support a bridge of bamboo were raised over stone piers, with openings through them which admit to the gangway.

It may not be uninteresting to know that the Frieburg suspension bridge was constructed by M. Challey, a French engineer, that it cost only 24,000*l.*, and that even with a considerable portion of the iron imported from England: the wire was drawn at Bienne, from iron forged in the Canton of Berne.—W. C. A.]

335 **Carrington, F. A.**—Designer and Producer.

Models of 3,000 square miles of England, showing portions of Leicestershire, Yorkshire, Nottinghamshire, Derbyshire, Chester, and Lancashire, part of the port and town of Dundee, and illustrating the peculiar features of these parts of the country. (Placed in the Main Avenue West.)

[Model maps are, as the name indicates, in relief, and are formed out of some plastic substance, such as plaster of Paris, papier-maché, or gutta percha, which can be easily wrought or pressed into a mould, and becomes hard when dry or cool: they afford a means of becoming acquainted with the true features of a country, to which no other mode of representation is equal.—W. C. A.]

Class VIII.

NAVAL ARCHITECTURE, &c.

173 **Penrice, Lieut.**, Royal Engineers—
Inventor and Proprietor.

Model of the stern of a vessel, with a new propeller and machinery, the object being to obtain a more direct reaction, less slip, and greater velocity of stroke. Registered April 1851.—Plate 305, p. 347.

223 **Deane, Adams, & Deane,** *King William Street, London Bridge*—Manufacturers and Inventors.

Revolving pistol, invented and patented by Mr. Robert Adams.

The principle of revolving chambers to pistols of one barrel is not new; but it was not until the application of percussion powder to effect their discharge that revolving or repeating fire-arms have been rendered practically useful.

The pistol, of which the accompanying plate is an illustration, is made of three sizes; the largest or holster size is 10 inches long in the barrel, including the cylinder; the bore 38 balls to the lb., and weight 2 lbs. 14 ounces. The next size is 8 inches in length, 54 balls to the lb., and weighs about 2 lbs. The smallest or pocket size is 6 inches long, 120 balls to the lb., and weighs about 18 ounces. The barrel and frame are forged out of one single piece of the best malleable iron, called "Marshall's iron," the square frame being cut out to admit the revolving cylinder. This square frame gives great strength to the whole pistol, and affords a receptacle for nearly all the mechanism required in working it. The cylinder contains five chambers, which are bored two sizes larger than the gauge of the barrel, in consequence of which, the ball having to pass through the diminished aperture of the barrel, is forced into the grooves of the rifling, windage is thereby prevented, and great accuracy and strength of shooting obtained. The chambers terminate at the breech end in a blunt cone nearly hemispherical, and the nipple is screwed into the back or apex of the cone so as to produce a direct central fire.

One of the most important features of this pistol is its mode of action, every movement being simultaneous and performed by the trigger alone. It rotates the cylinder, raises the hammer, locks the chambers, and as each revolves in a straight line with the barrel discharges the shot. By this arrangement the liability to accident is much lessened, as the cap is not in a position to be struck by the hammer until the aperture of the cylinder is in a direct continuous line with the barrel.

There is no ramrod required in loading; the powder being put into each chamber from a flask, and a spherical or conical ball with a wad attached, pressed down upon the powder with the finger. The ball is cast in the mould with a short tail, or "tang" of lead, which, on being passed through a small hole in the wad, is riveted to it by a slight blow.

On the left or near side of the frame is a stop spring, which on being pressed in, when the hammer is held as it were in a position of half cock and then allowed to fall, keeps the striking part of the hammer from projecting through the frame upon the nipple, thus allowing the cylinder to rotate freely when in the act of loading; and by drawing the revolving pin (which lies under the barrel) towards the muzzle, the cylinder may be removed immediately, and any number of cylinders, ready loaded, may be substituted one after another, so that, if desired, a hundred consecutive shots may be discharged.

All the parts of these revolvers, with the exception of the hammer, trigger, and springs, are made by machinery; the circular parts turned, bored, and rifled; the square surfaces planed, and the apertures in the frame slotted. The cylinders, after being polished, are engraved and case-hardened; the barrel and frame are polished, engraved, and blued; the main spring is inserted into the stock, and the sear and trigger spring into the frame; thus all the working parts are enclosed and protected from wet or injury, which make it scarcely possible, when properly adjusted, that any portion should get out of order.

Every pistol is proved at the proving-house, and has 12 rounds fired from each chamber (making 60 shots) before it is sold to the public.

The accuracy of shooting, particularly at long distances, is remarkable—12 to 15 paces being usually considered the maximum distances at which anything like accuracy could be arrived at; but with these revolvers every shot is *certain* at 50 yards at a 30-inch target, and equally so at 100 yards at a 6-feet target. The hammer or cock being behind the frame, and below the level of the barrel, the sights and aim are in no way interfered with.

Rifles and carbines are made on the same principle, and at from 300 to 500 yards are equally effective.

The wadded ball, of which an illustration is given, is found to be an excellent substitute for the Delvigne or Minié ball: its flight invariably points forward.

On the same plate is a mode of rifling also patented by Mr. Adams, showing three ridges instead of grooves, and dividing the barrel into a sort of triangular ellipse, somewhat in form resembling the external edge of the leaves of the shamrock. This gives great facility for the passage of the bullet, strengthens the barrel instead of weakening it by ploughing out grooves; prevents stripping the ball; does not allow powder to lodge, to foul the barrel and injure the shooting; and no patch is required.

An improved and simplified gun-lock, patented by Mr. Adams, adapted for soldiers' muskets (shown in the accompanying plate). It is formed of three pieces only, the plate, spring, and lock. As the whole is made by machinery, and from one mould, each part would fit any number of locks. It may be taken to pieces without the aid of turnscrew or vice, and put together again readily and simply by the fingers.—P. 352.—Plate 366.

244 **Reeves, Greaves, & Reeves**, *Charlotte Street, Birmingham*—Manufacturers.

Group of swords consisting of officers' dress sabre and field swords, sabre with scabbard and mounting of finest wrought steel. Scotch claymore with pierced hilt. Serpent sword, so finely tempered that when withdrawn from the scabbard it forms a perfectly straight sword.

These swords were exhibited for their superiority in those points which are of importance in the sword, viz.: the great length and excellence of temper in the blade, its strength and firmness, its lightness and easy balance, and consequently the readiness with which it may be wielded; the clearness of the steel, *i. e.* its freedom from blacks, flaws, or cracks; its great elasticity, high finish, and ornamentation. The operation of piercing the hilt, which is of wrought steel, in an ornamental manner, is very considerable, every hole therein being separately worked out with a file and by hand.

The manufacture of swords, until the last four years, found employment for a considerable number of workmen in the various branches of making steel for blades, forging, tempering, grinding, polishing, and in their ornamentation, also in forging, filing, polishing, and ornamenting hilts, the manufacture of grips, making and rolling the steel for scabbards, and turning up, filing, and polishing the same. Of late the number of hands employed has diminished yearly at a very rapid rate, and at the present time it furnishes employment for comparatively a very small number. The causes are various: the first, perhaps, which would occur to the mind of the general observer, is the decrease of war in various parts of the world. This has a great share, of course, in the diminution of the manufacture of swords in this country, but not to so great an extent as would be supposed by those who have not thought much on the subject, or had an opportunity of investigating it. There is a more powerful one to be found in the capability of continental manufacturers to produce the article at a much less price than can be done in England. A considerable trade in this article was, until the last five or six years, done with various parts of North and South America, especially in the Brazils and Mexico: now these markets may be said to be entirely lost to the English, for they have been supplanted in them by the continental manufacturer, who uses as his models British patterns.

This possession of the foreign markets has resulted in the transference of a very lucrative trade to the manufacturers of Solingen in Germany, where a very large number of persons are employed in the production of swords for countries which, until lately, were almost entirely supplied by the English. The consequence is a very serious loss to the artizans of the town and neighbourhood of Birmingham, and a very great improvement in the quality of the swords made at Solingen from the experience gained in the practice of manufacture. Another cause is to be found in the establishment by the English government of manufactories where swords are made for the supply of the British army and navy, at a cost, probably much greater than such articles could be supplied by private contractors.

The demand for swords for the use of officers in the British army is the only means of preserving the existence of this branch of trade; and it may be reasonably expected that if encouragement be not given to those manufacturers who still endeavour to produce swords of a superior quality, the manufacture of them will cease in this country, and we shall again be dependent to a great degree for our swords upon foreign makers. Another cause of the decay of this branch of manufacture is the custom now so general of officers of the army, navy, and yeomanry using, on dress occasions and their attendance at court, the plain sword which they use in the field.—P. 355.—Plate 410.

[At what period the manufacture of swords commenced in Birmingham, it is exceedingly difficult to determine: judging however from the allusions made by Camden and Leland as to the trades followed in the town, a considerable share of antiquity may be apportioned to it; and taking into consideration that the Protector's army was supplied with upwards of 15,000 blades, it would appear that considerable progress had been made in the manufacture, previous to that time. From some cause, a short time previous to the American war, English swords fell into disrepute; and a comparison having been challenged, on trial between a given number of English and German make, the superiority was proved to lie on the side of the English. This led to a revival in the trade, and for a long period not less than 1,000 workmen were employed. From the causes already alluded to, arising from foreign competition, the trade has been falling off for some time, and now it is probable there are not more than 250 hands engaged in the manufacture. The government establishment at Enfield has doubtless contributed its share to withdrawing or reducing the manufacture at Birmingham, while the superior taste of the continental artizans engaged in the production of dress or fancy swords, in all probability operates against the somewhat more substantial but less artistic works, produced by the British swordmaker.—W. C. A.]

359 **Tutt, George**, 34, *All Saints Street, Hastings*—Manufacturer.

Model of the new class fishing lugger, built at Hastings for the ports on the south coast. Length, 40 feet; burthen, 20 tons; new measurement.

[The fisheries of Hastings were formerly conducted by boats of an inferior class, from 25 to 30 feet in length, some of which were open, others but half-decked; but from the frequent loss of life, the many difficulties they had to contend with, and the want of a harbour or other means of shelter, it was rendered necessary to enlarge, to improve, and to deck them.

The boats of the present day are of very superior shape and construction; some of them are 35, 40, and 48 feet in length, rigged with three masts and lug-sails; the crew consisting of nine persons, and they carry about 140 mackerel and 110 herring nets, in their respective seasons. There are two seasons; one to the North Foreland, for herrings; the other to the Land's-End, for mackerel, where the good qualities of the boats and skilfulness of their crews are soon called into effect to overcome the many difficulties they have to encounter. They are allowed to be good sailers and good sea-boats. Frequently when returning from their fishing-ground they have passed large ships in distress, with their decks swept of everything, while the boats were beating to windward, with a load of fish, under snug sail.

The many advantages which they possess over some other boats are obvious through their superior build and handiness in working. A large space is allotted for the cabin, which is fitted in a comfortable manner; it contains eight bed-berths, besides ample convenience for stowage of provisions and fuel, and a fire-place; thus presenting a striking contrast to the discomfort of lying on deck, or sleeping on wet ropes and sails, as in the boats of a former period. There being no harbour at Hastings to run into, the fish are landed by means of ferry-boats, which are launched through a heavy surf to land the cargoes of fish, but not without sometimes capsizing and losing the whole. The trade of fishing here seems to be lucrative; some boats after a voyage share 40*l.* a man, besides his provisions during that time—the master of the boat occasionally receiving three times that sum, as the boat generally belongs to him, and is supplied by him with nets, &c.

The principal dimensions of one of the largest of these boats are:—Length over all. 48 ft.; length of keel for tonnage, 38 ft.; breadth, extreme, 15 ft.; depth of hold, 6 ft. 3 ins.; burthen, in O. M., 45 tons; light draft of water, afore 3 ft., aft 4 ft. 6 ins.; load draft, afore 5 ft. 3 ins., aft 7 ft. 3 ins.; displacement to light draft, or weight of hull, 17½ tons; displacement to load draft, 48 tons; capacity for cargo, 30½ tons; weight of ballast, 10 tons; number of crew, eight men and one boy; rig of boat, three lug-sails, topsail and jib; boat clench-built and copper-fastened: cost of hull and spars, 250*l.*

Unquestionably the Hastings luggers are fine boats; but in some we have examined, although the bow is good, the quarters appear too full for speed and easy motion in pitching and scudding, as the full buttock given to them could not fail to cause a depression of the bow in running before a sea.

We may aptly conclude this brief notice by stating that during the year ending the 5th day of January 1850, there were 95 fishing-boats, including large and small, employed at Hastings; and that they were manned by 553 fishermen and boys, independent of those employed at Rye, to the eastward, and Eastbourne, to the westward, of Hastings.—*Communicated by* Capt. WASHINGTON, R.N., F.R.S.]

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360 ALEXANDER BIRNIE, *Peterhead, Scotland*—Proprietor.

List of specimens of implements made use of in catching fish at Peterhead, on the north-east coast of Scotland:—

[The coast about Peterhead affords a great variety of excellent fish. The tide runs so strong, that only the most vigorous fish can live in it. The gross catch of herrings during the last year at the stations in Scotland and the Isle of Man was 795,416 barrels. The chief places at which the herrings were taken were Wick, Peterhead, Fraserburgh, Inverary, Banff, Lybster, and the Isle of Man. Of the quantity cured, 74,832 barrels, or one-eighth part, was sent to Ireland; 182,659 barrels, or nearly one-third of the whole, was exported to the continent of Europe, chiefly to Stettin, Dantzic, and Hamburgh; leaving 461,217 barrels, or 66,000 tons, including fresh fish, for local consumption and home markets. The price of the cured fish is about 20*s.* a-barrel, and it is chiefly consumed by the poor. In the cod and ling fishery the produce amounted to 7,590 tons, the chief fishing places being the Shetland Isles, Stornoway, Inverary, and the Orkneys. Of this quantity, 5,600 tons were cured fish, of which 500 tons were sent to Ireland, 350 tons exported, and the remainder used for home consumption. The number of boats occupied in the fisheries was 10,914, and the number of fishermen and boys employed in them was 40,938.

From this general view we turn to the more minute details of the Peterhead fishery, including the several implements made use of in catching the fish, models of all of which were exhibited by ALEX. BIRNIE, of Peterhead.—*Communicated by* Captain WASHINGTON, R.N., F.R.S.]

1. Herring net, complete, mounted with buoys, &c., ¼ size of length and depth of nets, but full size of mesh.
2. Eight long small lines.
3. Two long great lines.
4. Five hair hand-lines.
5. Six fly-lines, used with rods.
6. Two dandy lines, for early herrings.
7. A rod and line, for ditto.
8. A hair hand-line, with fly for large pollock, cod, and occasionally for mackarel.
9. Two hand-lines, for cod, complete.
10. A scull, ½ size, used with line, represented in bait as ready for casting.
11. A lantern buoy used with long lines.
12. Model of a Peterhead herring-fishing boat, complete; scale 1 in. to a foot.

The number of nets usually carried by each boat is 25, and each net 36 yards long when upon the ropes.

The length of small long lines and number of hooks carried by each boat's crew (which, in summer, comprises four men), are, upon an average, 2,400 fathoms and 3,600 hooks, being made up of 40 strings of 60 fathoms' length; each string contains 98 hooks, the number of lines and hooks carried varies according to spring or neap tides.

In winter a crew comprises six men, who carry 2,160 fathoms of small long lines and 2,520 hooks, being made up of 36 strings of 60 fathoms, each string containing 70 hooks.

There are a variety of long small lines made use of lately here, and may be classed as medium lines, having 80 hooks on each string of 60 fathoms, and the length carried 2,520 fathoms and 3,360 hooks. Of small long lines three are as used 8 m. south of Peterhead and made at Whinifold. They are classed as spring line for small cod and haddock, summer line for whiting, and winter line for cod and haddock. Two others made at Boddom, 3 m. south; one is for cod, or winter line; the other for haddock, or summer line. One from Burnhaven, 1 m. south. Two from Buchanhaven, ½ m. north, a summer line baited, and a medium line. The other sorts used at Burnhaven and Buchanhaven are like those of Boddom.

The eight long lines have a variety of hooks and make of lines, the three used farthest south on soft ground are more closely laid than the others, where the ground is rocky. The two great lines are as used at deep-sea and in-shore, in taking cod, ling, halibut, and skate. The length carried by a crew of 6 men is 2,160 fathoms and 5,401 hooks. Two of the eight hand-lines are used for cod fishing during herring season and carried by the herring crews, and are 60 fathoms long, having only one hook, the bait used is herring.

One hair hand-line used with fly for large pollock and cole, also for mackarel fishing. The other hand-lines are of hair, and used for catching cole, pollock, and red or ware cod, so termed from their colour, which is produced by the ware among which they are found. The length of the hair hand-lines used is 20 fathoms. The six fly-lines are used with rods 16 feet long and line of hair 12 feet to the lead. The fish taken with these are pollock and cole; the same lines are used for mackarel fishing when they are near the surface. The time best adapted for these fly-lines is during early and late part of summer.

Dandy lines for early herrings, one having 24 and the other 16 hooks; they are so placed and rigged that when in the water they appear as a bunch of sand eels, the food the herring pursues. These lines are used during the months of May and June.

Also a line used with a rod for herrings at the edge of the rocks in April and May.

Two buoys used as herring nets are made of sheep skins. The lantern buoy is made of same material, having a spindle passing up from the stock, which has about 8 lbs. of lead in it. The spindle extends about a foot above, on which is attached the lantern and a flag-staff; with the lantern the lines are wrought at night, and the flag serves by day to show the end first laid out, allowing the lines equal time on the ground; before this was used the lines last laid had not sufficient time on the ground, or the first laid too long. The merit of bringing the lantern buoy in use is given to Boddom, and from there the one exhibited has been supplied.

Number of boats that fished out of Peterhead in 1849	392
Ditto out of the neighbouring village of Boddom	48
Total	440
Number of men and boys employed in them	2,200
Number of barrels of herrings taken in the season	102,644
Total number of persons employed, exclusive of fishermen	1,580
Year 1850.	
Number of boats that fished out of Peterhead in 1850	272
Ditto out of the neighbouring village of Boddom	48
Total	320
Number of men and boys employed in them	1,600
Number of barrels of herrings taken in the season	49,953
Total number of persons employed, exclusive of fishermen	1,220

361 Saunders, J. E., *Billingsgate*—Inventor and Proprietor.

Model of a smack for fishing, fitted with an auxiliary screw-propeller, being a new application of this principle to vessels of this description.

362 Fox, Alfred, *Falmouth*.

Specimens of nets, seines, and lines, used in the mackarel and pilchard fishery on the coast of Cornwall.

The following statistics of the Cornwall fisheries were prepared by Mr. A. Fox, and communicated by Captain Washington, R.N., F.R.S.:—

Upwards of 150 varieties of fish are caught on the coast of Cornwall. Of these the pilchard and mackarel are the most important.—St. Ives, Mevagissey, Penzance, and Falmouth, are the districts in which the pilchard fishery is conducted on the largest scale with seines and drift nets; over an extent of about 250 miles of coast. Pilchard seines in different parts of Cornwall vary in size and mode of working, according to the depth of water, strength of tide, and habits of the fishermen.

A complete Mevagissey seine, including two large boats, each 40 feet long by 10 feet wide, and 4½ feet deep, and a small boat; together with a Stop net, 1,200 feet long by 84 feet deep, and Tuck net, 480 feet long by 84 feet deep, with warps, grapnels, &c., costs about 800*l*., and is worked by 16 men and 2 boys. The men's wages are from 8*s*. to 9*s*. a-week, and one-fourth of the value of the fish caught. Drift-boats vary from 5 to 20 tons burthen, and fish with a large or a smaller number of nets, say 20 nets (cost about 6*l*. each), each net being 18 to 20 fathoms long by 5 to 6 fathoms deep.

Local consumption is rarely above 15 millions of pilchards at 10*d*. to 1*s*. 3*d*. per 126 fish. It is supposed that a railway through Cornwall would raise the consumption of fresh pilchards in England to 50 millions. There were exported in 1850 to Italy, 25,530 hhds., each hogshead containing 2,500 to 3,000 pilchards, or a total of 71½ millions of fish, price 44*s*. to 60*s*. 6*d*. per hogshead. The statistics of these fisheries vary more or less every season: for instance, in 1847 the quantity of pilchards exported to Italy was 41,623 hhds. in 77 vessels. The exports to Italy in 1850 were thus distributed:—Naples, 10,008 hhds.; Venice, 4,720; Livorno, 4,298; Ancona, 2,524; Genoa, 1,515; Trieste, 1,155; Civita Vecchia, 1,102 hhds. A hogshead of pilchards weighs 476 lbs. English, gross. 550 hhds., or about 15 millions of pilchards is the largest quantity on record, enclosed by one seine in five minutes, and afterwards safely landed.

Mackarel is caught in drift nets and seines, and by hook and line. About six millions are caught annually on the coast of Cornwall. Prices vary from 4 to 24 fish for 1*s*.

A set of mackarel drift nets varies from 2,000 to 3,000 feet in length and 12 feet in depth. A Boulter, or Spiller, is a line 100 fathoms long with 100 hooks, which are of a larger size in the Boulter than on a Spiller. It is supposed that upwards of 4,000 men are employed afloat in the Cornish fisheries; that the cost of the fishing establishments, or capital invested, exceeds 300,000*l*.; and the value of all the fish taken in the year, about 150,000*l*. The total weight of fresh pilchards taken is 6,000 tons; of mackarel, 2,000 tons; of all other fish, 8,000 tons; total, 16,000 tons. Besides a very large quantity of lobsters, crabs, crayfish, oysters, &c.

363 Groom, John Turner, *Harwich*—Manufacturer.

Specimens of long-lines, buoys, hooks, and snoods, used by the smacks engaged in the North Sea cod fishery, constructed on an improved method.

Lines, hooks, &c., used in the hand-line cod fishery, for salting, and also live fish, at Orkney, Shetland, Iceland, and Lewis Islands.

Lines and hooks used in the haddock and whiting fishery in the Channel.

[The value and importance of the fisheries to this country, not only in a commercial point of view, but as supplying the poor with cheap and nutritious food, and as a means, if fostered, of raising up a body of intelligent seamen, conversant with our coasts and the set of the tides, and inured to every hardship, renders the following notice of the Dogger Bank and deep-sea fishery, for which we are indebted to Mr. John T. Groom, of Harwich, of great interest.

In the year 1712, at Harwich, well-smacks were first constructed capable of fishing in the North Sea for codfish, &c., and between that and the year 1715 three vessels of this description were built, though very inferior to those which were afterwards constructed. In 1720 the number was increased to twelve, and fifteen years later to thirty, out of which number Mr. Nathaniel Saunders (ancestor of the three generations of the celebrated fish factors and salesmen at Billingsgate) had six. With four of the best of these he visited the coast of Scotland in his fishing expeditions, and was at that time the chief medium of conveying goods to and from the north of Scotland. In 1745 his four smacks were engaged by the Government to carry the royal troops across the Moray Firth, from Muckle Ferry to Inverness, whence they proceeded to the memorable battle of Culloden.

In 1766, Mr. Olibar of Harwich, also a fishing-smack owner, made the first attempt to fish for cod with long-lines on the Dogger Bank (an extensive bank about 150 miles N.N.E. of Harwich, and 60 miles E. of Flamborough Head), but was unsuccessful. He still persevered, and in 1774 the number of smacks had increased to 62, and 40 of them went regularly to the Dogger Bank to fish with long-lines. In 1788 there were 78 smacks, and in 1798 as many as 96 smacks. About this period a few attempts had been made at Gravesend, Greenwich, and Barking-on-the-Thames, to construct smacks of a similar description.

About the year 1820 Parliament granted a bounty upon salt codfish. To the Scottish fisheries this was extended to fresh fish taken in well-smacks fishing in the deep sea. The bounty caused a spirit of speculation in Barking, and a large quantity of smacks of improved construction were built on the expectation of its continuance. In 1826 the Government discontinued the grant; but it had the effect of destroying the fishery at Harwich, as the owners could not compete with the large capital thrown into the fishery by the metropolis. The Harwich smack-owners became bankrupt, and in a few years the fishery disappeared there, with the exception of a few vessels, and at the present time there are only five well-smacks sailing from that place. The number and tonnage of all these vessels and of their crews, and the names of the ports they hail for, are as follows:—

	Smacks.	Tons.	Men.
Harwich . . .	5	300	50
Aldborough . .	10	500	90
Gravesend . .	10	600	60
Grimsby . . .	14	900	130
Greenwich . .	41	2,066	370
Barking . . .	180	10,800	1,620
Total . . .	260	15,166	2,320

These vessels are employed—40 on the cod fishery, 6 on the haddock fishery, and the remaining 214 in trawling.

There are also many of what are termed dry-bottomed vessels, viz., smacks built without wells, all fishing with trawls in the North Sea. The number of these vessels, their tonnage, and crews, now nearly equal those of the well-smacks; they belong chiefly to Hull, Ramsgate, Rye, Brixham, and Torbay.

The fish caught by both these descriptions of smacks are—cod, ling, halibut, haddock, skate, soles, plaice, thornback, turbot, brill, and other species.

In order to give the reader some notion of the enormous quantity of fish taken, we may here add an account of fish sold in Billingsgate Market during twelve months, as published in the 'Morning Chronicle' on the 12th December 1850:—

Salmon.	29,000 boxes at 1 cwt. ea	203,000 fish.
Cod, live	400,000 at 10 lbs. each	4,000,000 lbs.
„ barrelled . . .	10,000 barr at 2 cwt. ea.	450,000 fish.
„ salt	1,600,000 at 5 lbs. each .	8,000,000 lbs.
Haddocks, fresh .	2,250 tons at 2 lbs. ea.	2,470,000 fish.
„ smoked	65,000 barr at 300 ea.	19,500,000 fish.
Soles	12,000 tons at ¼ lb. ea.	107,520,000 fish.
Mackarel	10,500 tons at 1 lb ea.	23,520,000 fish.
Herrings, fresh . .	250,000 barr. at 2 cwt. ea.	1,375,000 fish.
„ red . . .	100,000 barr. at 500 ea.	50,000,000 fish.
„ bloaters .	265,000 bask. at 150 ea.	147,000,000 fish.
Eels	729 tons at 6 to a lb	9,797,760 fish.
Whiting	3,000 tons at 6 oz ea	17,920,000 fish.
Plaice	15,000 tons 1 lb. each	33,600,000 fish.
Turbot	800 tons, 2 lbs to 16 lbs. each.	800,000 fish.
Brill and Mullet .	1,500 tons at 3 lbs. ea.	1,220,000 fish.
Oysters	1,239,740 pecks at 400 ea.	495,896,000 oysters.
Lobsters	- - -	1,200,000 lobsters
Crabs	- - -	600,000 crabs.
Prawns	192,295 gallons	498,428,628 prawns.

The method of fishing for cod (from May to the middle of October) is by hand-lines. Haddocks are caught in the same manner. Whiting also, but with smaller gear: a piece of wire is placed across the upper part of the hook to prevent the fish swallowing the hook and killing it.

The fishing-ground for haddock is near what is termed the N.N.E. Hole, about 45 miles E. of the Humber, in the deep water of the Well Bank, and in the deep water to the eastward of the Well Bank (called by fishermen Botany Bay, as they considered it a sort of transportation to be sent there, from its lying so completely out of the track of vessels). Whitings are caught off Lowestoft, Southwold, &c.

Cod are taken during the summer at Iceland, Shetland, Butt of Lewis, Flannan Isles, Bara, Rona, and at Cape Rock off Cape Wrath, North Isles of Orkney, Pentland Firth, off Rattrie Brigs, Marr Bank, Fern Islands, and the shoal grounds lying off the Humber, from within sight of land to 30 and 40 miles off.

The trawling-ground for sole, turbot, brill, and plaice, is about Smith's Knowl, 25 miles N.E. of Yarmouth, Great Silver Pits, in lat. 54° N., between the Dogger and Well Bank, and on the Brown Bank, lying half-way between Yarmouth and Egmond-aan-Zee, in Holland.

The long-line fishing begins about November, along shore in thick water, as off in clear water the dogfish eat the cod very quickly when caught by a hook and confined.

About December the smacks proceed for the Dogger Bank, and in moderate weather some of the smacks will lay out lines to the distance of twelve miles; at every mile a buoy with a flag, and every nine feet a hook on a snood about twenty inches long, fastened to the long-line. These are hauled in, and the codfish lanced to let the air out of the sound (or air-vessel), which is so distended with air by struggling in hauling up that they cannot go under the surface of the water in the well, and would die unless lanced to free them from the pressure of the air.

The fish that are killed by the violent motion of the smack in bad weather, are taken out every day and salted. The live fish are taken to Grimsby, Gravesend, and other places where there is railway communication to London, at the latest hour to save the market. The codfish are taken out of the well and killed by a blow on the head, about three hours before reaching the market, or just before being packed to go by railway; they will then crimp after several hours, the same as when alive.

To give some notion of the influence of railroads on the fisheries, it may be mentioned that during the eighteen months ending November 1852, the Great Northern Railway carried to London from Grimsby (the nearest port to the Dogger Bank), 4,780 packages of cod of about 132 lbs. weight each box, 230 of salmon, 8,318 of lobsters, and 1,252 of trawl fish, making a total of 14,580 packages, or about 750 tons of fish. This amount is independent of the fish carried by the Manchester, Sheffield, and Lincolnshire Railway to the populous districts through which it passes. Codfish caught near the Dogger Bank at 70 miles from Grimsby is not uncommonly exposed for sale the following morning in London and in Manchester.

The bait used in the cod-fishery are whelks. Each vessel takes for a voyage about 40 wash (of 5½ gallons each). Haddocks and whitings are caught with mussels. The long-lines are coiled, and hooks baited in trays laid clear for running, having from 480 to 640 fathoms in a tray.

On the Dogger Bank the long-line or well-smacks fish in from 12 to 15 fathoms water in December; in from 14 to 18 fathoms in January; in from 18 to 22 fathoms (in lat. 54° 16′ N. to 55° 10′ N.) in February; and in shoaler water, say from 10 to 12 fathoms, in March. The trawlers in summer fish without and within Smith's Knowl, off Yarmouth; at the southern part of the Leman and Ower shoals, 25 miles N.E. of Cromer, and on the Brown Bank, within 40 miles of the Dutch coast, abreast of Egmond; and in winter in the Great Silver Pits.

The habits of fishermen are much altered for the better, but still there is room for improvement.

The master of the smack in the cod-fishery gets 12*s.* per week, and 5*l.* per cent. on the earnings of the vessel; some get a trifle more. The mates get from 14*s.* to 18*s.* per week; the men get from 13*s.* to 15*s.* per week; the apprentices, according to their servitude, from 4*l.* to 8*l.* and 10*l.* per annum, and occasionally more, besides small perquisites.

There are no particular charities or schools exclusively for fishermen and their children. There are savings' banks and national schools in most towns; but much good might be done by the charitable and well-disposed by inducing the fishermen to refrain from spirits (especially in Scotland), by improving the small tidal harbours around the coasts, by introducing a better class of boats for the along-shore fisheries (particularly in the north of England and in Scotland), by establishing mutual assurance societies, in which the fisherman could insure his nets and gear for a small premium, and generally by encouraging sober and industrious habits.—*Communicated by* Captain WASHINGTON, R.N., F.R.S.]

CLASS IX.

AGRICULTURAL IMPLEMENTS, &c.

15 **BUSBY, WILLIAM**, *Newton-le-Willows, Bedale*—Manufacturer.

Single-horse cart, for farming purposes. Two-horse plough, for general purposes.—P. 366.—Plate.

"Mr. Busby, it will be observed, by placing his shafts on the side of the cart has lowered his cart. He has lowered it as much as one in four, thereby diminishing the toil of filling carts with dung, stones, earth, &c., to the amount of one quarter. If we calculate how many thousand arms are employed in this way throughout England for many weeks in the year, we shall find that this improvement, simple at it is, will save no small aggregate amount of misapplied strength to the country at large."—*Juries' Reports*, p. 233.

28A **FOWLER, JOHN, jun.**, *Temple Gate Implement Factory Bristol*—Inventor and Proprietor.

Improved draining plough (patented for the United Kingdom, France, and Belgium), capable of effectually executing any drainage that may be required above the depth of 4 feet, at less than half the cost of the present system, and without disturbing the surface soil.

The engraving shows the machine just as it is finishing the drain. When commencing work, the plough is taken to one end of the field, and the capstan is moored at the other, the wire rope being run off the drum of the capstan and attached to the plough (either singly, in shallow draining or soft soils, or returned round a single sheave when greater power is required), as shown in the cut. The plug and coulter are then dropped into a hole prepared for them, and the pipes, threaded on a rope, are attached to the back of the plug, the hole being sloped off backwards, to allow them to enter easily. The horses are attached to the horse levers of the capstan, and, by walking in a circular course, wind the wire rope on to the drum, and pull the plough forward with the pipes attached. When the required length of drain is complete (which may be any length under 225 yards), the plough is run into another hole, and the rope on which the pipes are strung, being unhooked, is pulled out backwards, and the drain is complete. As it would be inconvenient to have the pipe rope in one length, it is made in pieces of 50 feet each; and, by a simple contrivance, as one rope enters, the other is attached to the end. It does not occupy more than one quarter of an hour from the time of finishing one drain to commencing another. The accuracy with which the clay pipes are laid cannot, it is said, be equalled by any hand-work; and from the bottom being undisturbed, they are not liable to sink, as is sometimes the case even in the best-executed hand-draining.

By this process, not only is the cost of burying the tiles reduced in many cases 50 per cent., but, from the quickness and neatness of the operation, it can be done at any season of the year, without injury to any short crop or interfering with the common farm operations, the surface soil being untouched, except at the healands; and where the hedges are low, the capstan can often be fixed in the next field. In undulating or flat lands, the levels are kept, or a fall insured, by working the coulter up and down in the body of the plough, by means of the worm and worm-wheel, shown in the cut, the ploughman's eye being guided by a try-sight, balanced on the plough, and a cross-staff, erected at the end of the field.

Several of these ploughs are now in constant work, and though great lengths of the drains have been opened in the presence of large numbers of agriculturists, in no instance have tiles been found incorrectly laid.

The quantity of draining that can be done per day will vary with each particular field; but in common clay land, when the depth does not exceed 3 feet, between 6,000 and 7,000 feet will be completed with four horses in the common working day; but when the depth exceeds 3 feet, from two to three horses will not do more than half that quantity. Where it is possible, this draining would be much more cheaply done in summer, as twice the quantity of work may be done by having two teams of horses out, and the other expenses would not be increased in proportion.—P. 366.—Plate.

108 **REEVES, THOMAS ROBERT, & BRATTON, JOHN**, *Westbury, Wilts*—Manufacturers.

Patent liquid-manure distributor. The liquid is distributed by means of revolving troughs, which throws it on two sloping boards or aprons, whence it falls on the land in a thin or thick sheet, as may be required; the cistern may also be turned up, to empty itself, by turning a handle.

Patent liquid-manure drop-drip. It works on the same principle as the distributor, by means of a succession of small buckets, which throw the liquid into tubes, into which the seed is conveyed from a seed-box. It drills the seed and liquid, either at intervals or continuously, as may be required.

These machines were invented by Mr. Thomas Chandler, of Aldbourne, Hungerford, Berks, and have been improved and manufactured by the exhibitor.—P. 374.—Plate to face p. 374.)

[One of the most important services which agricultural chemistry has rendered to the public is that of showing that the accumulated fluid refuse of our great cities, towns, or farm-yards may become, when collected together, of the greatest service as a fertilizer to the land, affording increased supplies of that which supports life, instead of that which, when left to stagnate in kennels or percolate through the ground, serves but to pollute the air, and engender the seeds of disease, pestilence, and death, or contaminate the water of our rivers and springs. The value of liquid manure is now appreciated as it ought, and all skilled agriculturists make provision for its collection in tanks, from which it is drawn and distributed over their lands by means of such machines as form the subject of the illustration.—W. C. A.]

124 **RANSOMES & MAY**, *Ipswich*—Inventors and Manufacturers.

Biddle's scarifier, or cultivator, 6½ feet wide, to be used with four horses, for cleaning land from couch, weeds, &c., after harvest, instead of ploughing. This scarifier, being equal in width to eight ploughs and a half, four horses would do the work of sixteen. The width of the implement imparts great steadiness to its motion, and its leverage is good.—P. 376.—Plate.

"Of the prize cultivators, Biddle's, by Messrs. Ransomes, is one of the oldest and still one of the best. The width gives it great steadiness, and its leverage is good, though wearing an awkward appearance."—*Juries' Reports*, p. 228.

129 **GIBSON, MATTHEW**, *Newcastle-on-Tyne*—Inventor and Manufacturer.

Northumberland clod-crusher, for working on land when either wet or dry. It is not liable to become clogged, and it makes the land much finer. It may be used with advantage on young wheat, for the wireworm, as also for making drills for the reception of clover and other seeds. —P. 380.—Plate.

The construction of this "crusher" is that of a series of narrow wheels which alternate with each other, and which pulverizes or breaks up the clods of earth which has been baked by the sun or otherwise pressed together.

135 **Crosskill, W.**, *Iron Works, Beverley*—Patentee and Manufacturer.

Patent serrated roller or clod-crusher, for crushing clods and compressing soft or fenny soils. This roller consists of cast-metal discs or roller parts, placed loosely upon a round axle, so as to revolve independently of each other. The outer surface of each roller part is serrated, and has a series of sideway projecting teeth, which act perpendicularly in breaking clods.—P. 380.—Plate.

[The principal use of the clod-crusher is in breaking down turnip land which has been fed off by sheep in wet weather and afterwards baked by the sun. Notwithstanding its jagged iron teeth, it has been found, too, the best presser for young wheat in March, when the soil has been swollen and the roots thrown out by alternate frosts and thaws. Thus applied, it also arrests the wireworm, and, if it wound the tender blade, the wheat tillers the better. By using it according to its intention, especially in the preparation of barley land, we may avoid sowing on cloddy ground, or save three weeks' delay of the sowing; and, in either case, may gain at least one quarter of barley per acre, thus paying for our implement in the first season.—Ph. P.]

216 **Collman, Richard**, *Chelmsford*—Inventor and Manufacturer.

Patent cultivator or scarifier, for breaking up, clearing, or pulverizing land. The frame at the top is suspended about 6 inches above the lower frame, parallel with which, by means of a lever, it is moved backwards or forwards. It is made with either five or seven prongs, according to the width of land intended to be cut.—P. 394.—Plate.

"This scarifier does not rise or swerve, but does its work as true as a plough, doing it therefore all at once. This is a decided advance, and greatly facilitates the substitution of a scraper for the plough."—*Jurors' Reports*, p. 228.

233 **Hornsby, Richard, & Son**, *Spittlegate Iron Works, near Grantham*—Inventors, Designers, and Manufacturers.

Six-horse power patent portable steam-engine, adapted for thrashing, grinding, sawing, pumping, &c.; mounted upon four carriage wheels, with shafts complete, for travelling. The cylinder and pipes connected therewith, being placed inside the boiler or steam-chamber, are protected from the weather. This is shown in connexion with Holmes' thrashing-machine.—Pp. 395, 396.—Plate.

[The peculiarities of this engine consist in the cylinder being placed inside the upper part of the fire-box, the whole of which, together with the rest of the boiler, was carefully felted and lagged with wood: a water-heating apparatus in the smoke-box helped also to produce the satisfactory result of great economy in fuel, and this was proved on trial. The engine, though it consumed 35½ lbs. of coals in getting up the steam, only required at the rate of 6¾ lbs. per hour to keep it up. Its power was that of six horses. The lagging and felting serve in a great measure to retain the heat generated, and protect the boiler from the effect of the weather.

The general introduction of portable steam-engines to agricultural purposes is of comparatively recent date, though they have long been used in Northumberland and East Lothian. Their value, however, is now beginning to be understood, owing to the facility they afford in the conveyance and generation of power. Where thrashing and other mills on farmsteadings are set in motion by water-power, in seasons of drought they are frequently valueless.—W. C. A.]

234 **Smith & Co.**, *Stamford, Lincolnshire*—Inventors and Manufacturers.

Patent iron balance-lever horse-rake, for hay, corn, &c. —P. 396.—Plate.

[Horse-rakes are generally about 8 feet wide, running on low wheels, and are drawn by one horse, at a rapid pace, between the rows of cocked oats, barley, or hay. They are tipped from time to time, while they move on, by a man who follows. One of them will probably do the work of ten or fifteen women.—Ph. P.]

Class X.

PHILOSOPHICAL INSTRUMENTS, &c.

12 **Loseby, E. T.**, 44 *Gerrard Street, Islington*—Inventor.

Improvements in timekeepers.—

An improvement in the compensation balance, for chronometers, watches, &c.

A correction for rendering the long and short arcs of the pendulum isochronous.

An improved form of the mercurial pendulum.

The object of the improvement in the balance is to remove a defect in the ordinary compensation, which causes the chronometer to gain in the intermediate temperature when perfectly adjusted for the extremes, on account of the balance-spring losing elasticity at an accumulating rate over the effect produced by the compound laminæ of the balance.

This defect is removed, in Mr. Loseby's improvement, by placing curved tubes containing mercury on the ordinary compound laminæ, in such a position that the mercury, as it expands by an increase of temperature, approaches the centre of the balance at a gradually accumulating rate.

The improved balance was shown under several modifications, to suit the different requirements when applied to chronometers of the old construction, to new chronometers, and to pocket chronometers and watches.

The supplemental compensation admits of being adjusted by turning the tubes in or out, so as to alter their inclination to the radii of the balance; but it has been found in practice that the tubes can always be applied by rule, so as to bring the supplemental compensation within five-tenths of a second a day throughout the whole range from 10° to 110° Fahr.; any subsequent alteration is, *therefore*, seldom required: this is an important feature in a manufacturing point of view.

The progressional increase of motion in the column of mercury to the centre of the balance, and, consequently, its effect on the momentum of inertia, was shown on a large explanatory diagram attached to the improvement.

The second improvement has reference to astronomical, turret, and other clocks. Its object is to render all the vibrations of a pendulum isochronous, and is effected by a fine circular spring, arranged in such a position that the impulse which it gives to the pendulum increases at the same rate of accumulation as the increase of arc retards it; thus causing the long and short arcs to be performed in the same time.

Facility is given for adjusting the compensation, as the spring can be moved higher or lower from the point of suspension, nearer or farther from the pendulum rod, and larger or smaller, by drawing it through the clamp.

In order to obtain the most perfect form of the compensation, Mr. Loseby selected the following as the principal conditions to be observed. That its rate of increase should agree with the law required; that its action should not create any friction; and that it should only act through that part of the arc in which it was required, so as to reduce its entire effect on the vibration to the lowest possible amount, in order that it may not sensibly diminish the arc, nor require any addition to the compensation for temperature.

The correcting spring is composed of watch balance-spring wire, and the small force required affords a practical illustration of the slight momentum necessary to produce a considerable difference in the time of the pendulum's vibration.

The third improvement has for its object a more advantageous form of the pendulum, which is effected by packing the ends of the vessel containing the mercury with screw stuffing-boxes.

As the only test by which improvements in horology can be judged of is that of actual trial, and as the Reports of the Astronomer Royal to the Lords Commissioners of the Admiralty on Mr. Loseby's improvements are too long to insert here, we would refer our readers to a pamphlet on the subject published by Effingham Wilson, Royal Exchange.

Registered under the Protection of Inventions Act.—P. 408.

[The term "isochronous," in its simplest mode of definition, is the performing of several acts in equal times; such as the vibrations of the pendulum of a clock, or the balance-wheel of a watch. Upon the performance of the same act with unvarying regularity depends the excellence of chronometers and other machines for the measurement of time. The number of vibrations in an hour varies with the temperature; and to produce the same number of vibrations in a given time under all temperatures and in all climates has hitherto been a desideratum earnestly sought after, and all but realized. In the prosecution of the inquiry as to the best means of securing complete regularity, we find the names of Harrison and Mudge, Earnshaw and Arnold, Arnold and Dent, &c. &c. &c.: these have produced chronometers unequalled in excellence by the makers of any other nation. The means employed to arrive at the desired result have been various: the majority have employed balances, the outer rim of which is formed by the union of two metals, such as steel and brass, divided in its circumference into two or more parts, and attached to a steel bar or "crossing" by opposite ends, leaving the others free to operate. Increase of temperature expands the steel, which causes a loss of time; the same degree of heat operates differently on the brass which forms the outer part; cold increases the elasticity of the steel, which would cause the mahine to gain, but the brass by its peculiar property again operates and counteracts the effect arising therefrom. Weights are attached to the outer portion of the circle in the form of four small screws, the alteration of which aids the desired compensation. Whatever arrangement or combination of metals is made, the end sought is the production of an isochronous or as nearly as possible an unvarying and regular beat or vibration. The present exhibitor wishes to produce this by the employment of tubes containing mercury, in the manner described by himself in the enumeration of the articles exhibited.

To such a degree of accuracy have the makers of chronometers arrived, that several carried to the most opposite temperatures have not been found to vary two seconds of mean time throughout the year. 300*l.* is awarded annually for the best; they are tested at Greenwich Observatory. —W. C. A.]

32 Jackson, W. H. & S., 66 *Red Lion Street, Clerkenwell*—Inventors and Manufacturers.

Sections of watch movements, showing the construction of the soliclave or solid key watch.

Face and back of a watch, elaborately engraved and ornamented.

The right-hand section represents the inside view of the pillar plate of the watch movement showing the calibre.

A is a barrel containing the main spring.

B is a hollow square arbor planted in the frame, having a leverage the entire depth of the movement. This, in a toothed barrel, is in action only during the time of winding up the watch.

The middle view is a lateral section of the watch movement.

E is the barrel containing the motive power.

F, hollow square arbor as planted.

f the key with solid square.

The left hand view represents the pillar plate under the dial.

C is a steel toothed wheel on the extremity of the winding arbor containing a hollow square (closed at this end to prevent the passage of any substance into the movement).

D is a similar wheel on the fuzee or barrel arbor, as the case may be, driven by C, and by which the main spring is wound up.—P. 411.—Plate 367.

[The objects of the application of the solid key for watches are to effect economy in production, and to attain more elegance of form, with equal solidity of parts, and to simplify the winding. Much saving may be also effected both in the cost of the material of the watch-case when of gold, and in the outlay of labour. In a watch as usually made, the case, besides the inner cover to the movement, has a stout outer cover, with a joint or hinge of fine workmanship, and fittings with secret springs, &c., all required to protect the winding aperture from dust, &c. In the soliclave or solid key watch, this additional labour, thickness, and expense, are dispensed with, as the watch is wound by a solid square directly from the outside,—the small aperture for the key being isolated and leading to no part of the watch, by whose friction the accuracy of its time-keeping can be sensibly affected.]

168 Collard & Collard, 26 *Cheapside*—Inventors, Patentees, and Manufacturers.

An extra grand pianoforte, of seven octaves, A to A, with the new patent repetition action, in a case of the choicest specimen of British mottled oak, richly decorated with carved and gilt ornaments in the style of Louis XV.

(This instrument was exhibited in the Western Nave, under the cast-iron dome of the Coalbrook Dale Company.)

An elegant extra grand pianoforte of 7 octaves, A to A, with the patent repetition action, in a choice rosewood case, with elliptic end, carved plinth, and richly carved cabriole trusses.

A cabinet pianoforte of 6¾ octaves, with the new patent repetition action, in a case of rich British oak, of a very novel and beautiful design, richly carved in the style of Louis XV.

A square semi-grand pianoforte, of 6¾ octaves, with the patent repetition action, in a case of very fine walnut-tree, on handsome truss legs and paw feet, decorated in the Florentine style with richly carved festoons, and centre panels of palm branches entwined with wreaths of laurel.

Two microchordons, or, semi-cottage pianos in plain cases of pine and rosewood, submitted as specimens of very superior instruments of their particular class, at prices so low as to be within the reach of a very numerous class of purchasers who might otherwise be driven to the alternative of buying inferior instruments.

The preceding instruments illustrate the following patents taken out by, and assigned to, Messrs. Collard and Collard.

For "Certain improvements in pianofortes, and in the mode of stringing the same," viz., an application of the check action to the square pianoforte, thenceforward called the Grand Square; and a new mode of stringing, adapted to instruments of all kinds, by passing the wire round a single pin; thus superseding the use of the noose or eye, before in general use; also for a new arrangement of the damper, known as the elongated damper-head, by which the jarring consequent on the old method was entirely prevented, and more effectual damping secured. Patented March 2, 1827.

For "Improvements in Upright Pianofortes," viz., applying a check to the under hammer to prevent the rebound of the hammer against the string. Patented November 2, 1829.

For "Improvement in the Mechanism of Horizontal Grand and Square Pianofortes," consisting of an entirely new construction of the action, the escapement being placed upon the key, and coming in contact with a lever or crank, and thus regulating the rise and fall of the hammer, thereby imparting greater vigour to the blow, and increased durability to the touch. Patented January 15, 1835.

The introduction of a new class of square pianoforte, entitled, "the Patent Square Semi-grand Pianoforte," being a further improvement of the grand square, by which a closer approximation to the peculiarities of the horizontal grand pianoforte was attained. Patented January 1, 1838.

For "Certain further improvements in the Action of Horizontal Pianofortes," consisting of the introduction of the traversing escapement fixed upon the hammer-rail, resulting in a greater amount of precision and increased vigour of action, as also the introduction of a repetition movement. Patented November 11, 1841.

For "Improvement in the Action of Pianofortes," viz., the application of the repetition movement to square and to vertical or upright instruments. Patented April 29, 1843.

Registered—A new design for the shape of a square pianoforte, entitled, "the Symmetrical Grand Square," by which greater beauty of form was secured, the keyboard being placed in the centre of the instrument, thus obviating the inelegant appearance of the old instruments. Patented October 15, 1847.—P. 430.—Plate 321.

* * *

697 WALKER, JOHN, 48 *Princes Street, Leicester Square* —Manufacturer.

Drawing room clock-case, from a design by Mr. C. Grant; with subjects in panels embossed by Mr. G. Abbott. The case is electrotyped, and consists of a base and pedestal of turquoise blue glass, surmounted by figures indicating the progress made in the civilization of this island, which is also illustrated by the 7 panels revolving at the base. These subjects represent the savage life of the ancient Britons—the Roman governor introducing agriculture—the encouragement given to Flemish weavers to settle in the island—the introduction of printing by Caxton—the improvement of the steam-engine by James Watt—the opening of the first railway at Liverpool—and the movement which led to the Great Exhibition.—P. 472*. —Plate 337.

752 COTTON, WILLIAM, Governor of the Bank of England, *London*.

A coin weighing-machine for sovereigns or half-sovereigns, which performs the various operations of weighing the coin, and separating it into two classes, viz., light, and full weight. It consists of a square brass box; on the top of which is placed a hopper, to hold the sovereigns to be weighed. This hopper is a long trough, placed at an angle of about 45° with the top of the box: it will contain about 500 sovereigns. In front of the box are two small apertures, to which are fitted two receivers, one for the sovereigns of full weight, the other for those which are light. Inside the box, and near the upper plate, the beam or balance is placed; at one end of the beam, and above it, a small platform is poised upon a knife-edge, which receives the sovereigns to be weighed: this platform, which, in fact, is one of the scales, is kept in its position by means of a small pendulum, in which, at about an inch below the platform, there is an oblong perforation, about half an inch in length, technically called a "slot," in which a small ivory rod works freely up and down without touching the sides.

Between the slot and the platform a pair of forceps is placed. From a knife-edge at the other end of the beam a small round polished plate is suspended, to which a pendulum is fixed, and at its lower part the scale is placed to receive the weight. Above the small round plate, under the top of the box, an agate is fixed, with a blunt point. When the machine is in motion, the small ivory rod is depressed; this, on touching the bottom of the slot or opening in the pendulum in which it works, brings down the beam on that side, and raises it on the other, the weight side, until the small round plate on that side touches the agate point. The beam is then in a horizontal position. As soon as this is effected, the forceps catch hold of the pendulum between the platform and the slot and hold it firmly. The balance is then in a condition to receive the sovereign, which is shifted from the bottom of the pile in the hopper, and brought by means of a slide along a channel just large enough for a sovereign of the proper standard gold to pass, but not large enough to admit a counterfeit, and deposited upon the platform. The forceps then let go their hold, the ivory rod is gently raised, and, if the sovereign happens to be light, that end of the beam rises, and the other leaves the agate point; but if the sovereign be of full weight, the beam remains stationary, and the small plate on the weight end in contact with the agate point.

When the sovereign is weighed, the operation of its removal is very ingenious, and is as follows:—Two bolts are placed at right angles to each other, and on each side of the platform or scale there is a part cut away to admit of the bolts striking so far into the area of the platform as to remove anything that would nearly fill it. These bolts are made to strike at different elevations, the lower one striking (as to time) a little before the other; if the sovereign be of full weight, the scale remains down, and the lower bolt knocks it off into the full-weight box. If the sovereign, on the other hand, be light, it rises up, the first bolt strikes under and misses it, and the higher bolt then strikes and knocks it off into the light box. This machine weighs about thirty-three sovereigns in one minute. The weights used are of glass, and are adjusted to within the ten-thousandth part of a grain.

753 CHALLIS, Professor, *Observatory, Cambridge*—Inventor.

An instrument for calculating the sum of the corrections of the three errors of a transit instrument, adapted for the latitude of Cambridge, and for any given north polar distance. The manner of performing the calculation is dependent upon certain geometrical considerations, fully detailed in the Monthly Notices of the Royal Astronomical Society, Vol. 10, No. 8.

The instrument consists of a brass circular plate, moveable about a vertical axis, passing through its centre; on the plate are engraved scales for setting off positive and negative level and azimuth errors. A straight edge guides the motion of two bars, which carry two fine parallel threads of blackened unspun silk over the surface of the plate. The interval between the threads is made equal to the collimation error by means of a scale engraved on a brass plate to which one of the bars is attached, and an index fixed to the brass plate to which the other bar is attached; the two plates are clamped together by a screw; when the threads are set to the required interval, the screw-head serves for a handle by which to move them. The circle is graduated for showing north polar distances both above and below the pole. The calculation is performed simply as follows. After setting the circle to a given north polar distance, one of the threads is made to bisect a dot whose co-ordinates are the level and azimuth errors, and the other then cuts off the required quantity from the *correction scale*, which is a graduated diameter of the circle, inclined at an angle equal to the latitude of the Observatory to the axis of level error. This operation, which gives what is usually obtained by three multiplications with a sliding scale and three additions, occupies no more time than one multiplication with the sliding scale.

With regard to the degree of accuracy of which the machine is susceptible, Professor Challis observes, that the usual method may be inaccurate to one-hundredth, or even two-hundredths of a second, whilst the machine by moderate care will give the nearest hundredth of a second. The indications of the instrument, however, become more uncertain in proportion as the north polar distances are less, on account of the small inclination of the threads to the correction scale. To meet these cases an additional scale is engraved along the straight edge that gives direction to the threads.

Should the instrument be required for use in a latitude different from that for which it was constructed, a slight additional calculation is requisite, but one which the instrument is made to perform itself. Professor Challis observes, that the machine, which required no little nicety of workmanship, was executed for him by Mr. Simms in a very satisfactory manner.—See *Jurics' Reports*, p. 312.

Classes XII. and XV.

WOOLLEN AND WORSTED.

502 **Graham, John**, 10 & 11 *Ludgate Street, City*—Proprietor and Importer.

China crape shawls, embroidered in silk of various colours with figures and flowers. Intended to be worn on either side, as both sides are alike. Exhibited for superiority of texture, colour, and design.

"Graham, John, Ludgate Street, London, embroidered crape shawls, of peculiar excellence in texture, colour, and design. They are probably the finest specimens ever brought from China, and of the highest possible merit. We hold the exhibitor to be worthy of the Prize Medal as the importer."

"A very handsome long shawl, called an Alvandar."—*Juries' Reports*, pp. 378 and 381.

Class XIV.

FLAX AND HEMP.

97 **Royal Belfast Flax Improvement Society.** Messrs. *J. Preston & Co.*, Belfast; Mr. *James White*, Broughshane; Mr. *John Adams*, Ballyderitt; and Mr. *Gaily*, Coleraine—Proprietors.

Sacking, huckabacks, drills, diapers, ticks, linens, lawns, and hollands, forming a series of specimens illustrating the flax manufactures of that district. (See also Cl. 4, No. 106.)

[Mr. McAdam, in his lecture before the Society of Arts, on the culture of the flax plant and modes of preparing its fibre, remarks,—"In Ireland, in which from a very early period the linen manufacture has been successfully prosecuted, flax culture is now progressing rapidly, and presents an important feature in Irish agricultural produce. The growth has increased during the last four years from 53,863 to 138,609 acres, which last year's statistical returns show to have yielded 34,000 tons of fibre; and it is calculated that the value of the crop is not much under 2,000,000*l*. This remarkable increase, when the article is to compete with foreign flax admitted duty free, shows the natural elements of its successful production to be present to a large extent; and, latterly, in consequence of the pains taken to introduce the best system of culture, and the carrying out of new inventions for the after-processes, the quality of the fibre, and the manner in which it is prepared for the market, are both improving. Irish flax sells at prices varying from 35*l*. to 100*l*. per ton. The province of Ulster has hitherto produced nearly all the flax grown in Ireland, but through the exertions of the Royal Belfast Flax Improvement Society, to spread it over the other provinces, whose natural capabilities are equal, or in many cases superior, it bids fair to be generally grown throughout the island; as, while in 1848 only 2,860 acres were grown without the bounds of the northern province, in 1851 there were 14,893 acres. This extension must be looked upon as a great boon to the Irish farmers, who have been suffering so severely from the change of duties on other agricultural produce, aggravated by the total loss of the potato crop, and the desolating effects of famine and pestilence." The patent process of Claussen for the conversion of flax into a cotton-like material, in connection with the facilities it presents for the separation of the fibres, would seem to favour the more extended cultivation of flax. His process is as follows:—

"This process (patented August 1850) consists essentially in boiling the cut and crushed stems of the flax, hemp, or other plant, in a dilute solution of caustic soda, containing about one two-thousandth part of alkali. The fibrous matter is then removed, and plunged into a bath of dilute sulphuric acid, containing one five-hundredth part of acid, in which it is boiled for about an hour. It is next transferred into a solution containing about ten per cent. of carbonate of soda; and, lastly, when it has remained in the latter for an hour, it is plunged into a weak solution of sulphuric acid, consisting of one part of acid to two hundred or five hundred parts of water; in this it is left for about half an hour, and the process is completed. The effect of these several processes is 'to divide and split up' the fibre in a most remarkable manner, so as completely to alter its character. Flax thus treated is converted into a substance very nearly resembling cotton. It is probable that flax cotton can be advantageously used in the manufacture of mixed fabrics, as it appears capable of being spun with wool, silk, and other fibres. It may, therefore, perhaps hereafter lead to several new and important practical applications. For this ingenious process the Jury awarded a Prize Medal."

This, however, had been previously effected by Lady Moira (1775), aided by T. B. Bailey, Esq., of Hope, near Manchester. The introduction of the material was generally opposed from some mistaken prejudice, and her difficulties are detailed in her own words as follows:—

"'I have no reason to be vain of the samples I have sent you; they merely show that the material of flax cotton, in able hands, will bear manufacturing, though it is my ill fortune to have it discredited by the artizans who work for me. I had in Dublin, with great difficulty, a gown wove for myself, and three waistcoats; but had not the person who employed a weaver for me particularly wished to oblige me, I could not have got it accomplished; and the getting spun of an ounce of this cotton in Dublin I found impracticable; and the absurd alarm that it might injure the trade of foreign cotton had gained ground, and the spinners, for what reason I cannot comprehend, declared themselves such bitter enemies to my scheme, that they would not spin for me. Such is my fate, that what between party in the metropolis and indolence in this place (Ballynahynch), I am not capable of doing my scheme justice. That it should ever injure the trade of foreign cotton is impossible. Though long accustomed to behold shoes and stockings looked upon in this part of the world by the generality as quite unnecessary, yet I cannot think but some apparel is requisite; and as the price of wool is so high, and the poverty of the people so great, I did wish to introduce amongst them that invention which I saw might be greatly improved, and turn the refuse of flax into comfortable clothing, and by a process so easy that every industrious wife and child might prepare it.' Lady Moira states, that the flax-cotton gowns which she had had made, and which were worn by the members of her own family, were exceedingly durable; and the specimens of these fabrics, as well as of the flax-cotton prepared by her, which are still preserved in the Museum of the Society of Arts, &c., are highly remarkable for their beauty."

Recent experiment has proved that the stalks of ordinary grain-bearing plants may be converted into a cotton-like substance, applicable to purposes of manufacture. —W. C. A.]

CLASS XVI.

SADDLERY, HARNESS, &c.

78 **BLACKWELL, SAMUEL & ROBERT**, 259 *Oxford Street* —Inventors and Manufacturers.

A superior set of phaeton harness, with richly chased and ornamented gilt mountings, the emblems of Great Britain and Ireland – the rose, shamrock, and thistle; the ornaments on the saddle and bridle are the collar, star, and badge of the Order of the Garter. The whole of black patent leather, highly worked. Gilt steel bits and highly-chased bosses.

This harness was shown on a model of a celebrated horse; the casts from which it was made were taken from life.

Hunting saddle and bridle, complete, with steel bits, stirrups, &c., galvanized, to prevent rusting.

A suit of horse clothing, of double kersey; fleecy on the inside, for warmth.

Improved fetlock, leg, and speedy-cut boots, to prevent horses being lamed by cutting; made of elastic vulcanized India-rubber web and leather.

Eye-blinds, for singeing, bleeding, &c.

Patterns of improvements in saddlery.—P. 521.—Plate 368.

"Blackwell, S. & R., 259 Oxford Street (78, p. 521-2), for phaeton harness of patent black leather. The mountings are in good taste; the materials and workmanship are also of good quality."—*Juries' Reports*, p. 394.

[Though the art of galvanizing iron, &c. has of late years formed the subject of an English patent, it was practised in France, at Rouen, in the year 1780. The term galvanizing is a misapplication—it is simply coating with zinc by immersion therein, as in ordinary tinning; the object having been previously cleansed by a pickle to remove the oxide, grease, &c.—W. C. A.]

336 **COX, W. H., & Co.**, *Russell Street, Bermondsey*—Manufacturers.

Two foreign butts tanned by the exhibitors.

337 **DRAPER R. & H.**, *Kenilworth*—Manufacturers.

A heavy tanned English hide, weighing 90 lbs.

338 **HEPBURN, JOHN & THOMAS**, *Long Lane, Bermondsey*—Manufacturers.

An English cross-butt, of good substance and texture, tanned by the exhibitors' process.

339 **KEILICH, HENRY**, 9 *Butterland Street, Hoxton*—Manufacturer.

Models of a tigress and cubs in miniature. Every hair was separately fixed by the hand. Exhibited for ingenuity and excellence in design and workmanship.

340 **BOLDNER, SAMUEL**—Manufacturer.

A fur hearth-rug, representing the royal arms of England.

CLASS XVII.

PAPER, BOOKBINDING, &c.

111 **WESTLEYS & Co.**, *Friar Street, Doctors' Commons* —Manufacturers.

Holy Bible, royal folio, Oxford, bound in purple morocco, with enchased clasps, corners and centres; and painted edges in gold and colours, with appropriate Scripture texts from the Old and New Testament.

Specimens of bookbinding in plain and ornamental styles, gilt, with appropriate and emblematical tooling. —P. 544.—Plate 293.

CLASS XIX.

CARPETS, LACE, EMBROIDERY, &c.

3 **GROUCOCK, COPESTAKE, MOORE, & Co.**, 5 *Bow Church Yard*—Designers and Manufacturers.

Specimen of Scotch muslin embroidery, of new design, for flounces. The annexed plate represents the exact size of the work; but the same design is also made in every variety of width.—Plate 339.

Exhibited for excellence, novelty of design, and superior manufacture.

[The principal seat of the Scotch sewed muslin embroidery was confined almost exclusively to Ayrshire and the western counties of Scotland. It afforded the wives and daughters of miners and others engaged in the lead, iron, and coal-mines, lime-works, &c., the means of adding materially to the limited earnings of the latter, at the same time placing in their hands a few shillings for exigencies, which the periodical settlements of miners (taking into consideration their scanty earnings) rendered very doubtful. In passing through the villages which skirt, the great road from England to the metropolis of the west, the traveller could not have failed to observe the female population, web and needle in hand, busily employed in depicting on the marked muslin the several devices imprinted thereon. The employment is on the decline. The earnings vary from 6*d*. to 5*s*. per week; superior workwomen have realized as much as 10*s*., but such form exceptional cases.—W. C. A.]

Specimen of Honiton guipure point lace flouncing, of new design, in imitation of the old guipure lace now so much in request.—Plate 340.

Exhibited for superiority of design and manufacture.

The assortment of lace, muslins, and embroidery, contributed by these exhibitors, also included specimens of Nottingham laces; a large Honiton guipure half-shawl, flouncings, lappets, and trimmings; Honiton point falls and veils; a double-flounced dress, with court train of tambour work, on fine Brussels net, the whole of elaborate design and workmanship; Buckinghamshire laces in black and white: some specimens of the latter are said to vie in beauty with the celebrated Valenciennes.

[The portraits of Vandyke and Lely, which adorn the ancestral halls of many of the nobility of our land, demonstrate that lace was at one period much more generally worn than it is at present. Its use was not confined exclusively to the gentler sex; the "gay gallants" which thronged the courts of James and the Charleses sported point lace cravats, the more delicate, fragile, and expensive the better.—W. C. A.]

An assortment of specimens to illustrate the present state of the Scotch Muslin embroidery trade, consisting of flouncings (one of which is shown in the accompanying plate), habit-shirts, high and low chemisettes, collars, cuffs, robes, trimmings, insertions, and caps.

Specimen of lace net for the application of Brussels and Honiton sprigs, manufactured of cotton thread, valued at 25 guineas per lb. Specimens of lace net for mosquito curtains.

[Amongst the inconveniences attendant upon residence in a tropical climate are the myriads of insects which infest earth and air. Those common to the lower region are not unfrequently repelled by placing the pillars of the couch or bed in cups or dishes containing some fluid obnoxious to the insect which it is desirable to exclude. Mosquito curtains indicate sufficiently by the name their purpose: the entire bed being enveloped by them, and the curtains held down by having the lower hem "shotted," a single opening is left in front for obtaining access. The meshes are small enough to exclude the mosquitos, but admit of a free circulation of air.—W. C. A.]

"Groucock, Copestake, Moore, & Co., London, (3, pp. 559 & 560), for Honiton guipure half-shawl, flouncings, lappet, and trimming lace, of excellent design and manufacture. Double-flounced dress, with court-train, tamboured on fine Brussels net, elaborately worked and well designed. Very wide Buckinghamshire lace of fine quality. Embroidered muslin low and high chemisettes, collars, cuffs, trimmings, &c., of superior work."—*Juries' Reports*, p. 468.

25A ROBINSON, THOMAS, *Nottingham*—Manufacturer.

Machine-made lace curtain, exhibited for excellence of quality and design.

[It is interesting to remark the mutual assistance which the ingenious of one nation affords to those of another: thus, clever and skilful as were the lace machines which had previously existed, it was not until the invention of Jacquard was engrafted thereon that the full development of the lace trade was rendered apparent even to manufacturers themselves. "Such an impetus did the trade receive from the application, that hundreds of machines which were worked-up or valueless, were brought into profitable use, and at the expense of 80*l.* or 100*l.* being spent thereon, their owners were able to realize, if the pattern were a good one, that sum in three or four weeks." The capital at present employed in the lace trade amounts to 2,965,945*l.*; the number of hands engaged, 133,015; the amount of business returns, 2,300,000*l.*" Additional information as to this important trade will be found in the Jury Reports of Class 19, from which the above information is extracted.—W. C. A.]

179 TURTON, SAMUEL, *Nottingham*—Designer.

A design for a lace curtain.

[No sooner had the application of the Jacquard principle to the bobbin-net machine been successfully accomplished, than a demand for superior designs upon which to employ it became general. Where to procure these became the subject of anxious inquiry on the part of the manufacturers. A school of design was at length instituted at Nottingham, of which the Reporter of Class 19 records—"that though, at first, it appeared to be comparatively useless, it was not so, but was affording several young men who had no means of acquiring knowledge otherwise, instruction in the art of design, and they now fill important situations and receive liberal salaries; that at the present time there are local artists who are capable of producing designs equal to the French and Swiss." And further, "We think it right here to state, that the Government School of Design has materially assisted the enterprising manufacturer and artisan." The above is a most important recognition of the value of schools of design, and as such it is worth quoting.—W. C. A.]

263 PARDOE, HOOMANS, & PARDOE, *Kidderminster*—Manufacturers.

Specimen of Whytock's patent velvet pile tapestry carpeting, the design represents flowers with scroll-work. The colours are permanently printed on the worsted before it is woven.—P. 569.—Plate 369.

[The following is the process by which the patent tapestry carpet of Whytock is produced. A design having been selected, a nice calculation is made as to the space required to be taken up by the figure when woven; and this is something considerable, if we bear in mind that every loop in the Brussels pile carpet presents but a comparatively small surface in proportion to its depth. Keeping this in view, it will readily be understood that the printed yarn exhibits, where a circle is to be produced, only a rudely-defined oblong or oval, which the wire or pile takes up, thereby diminishing its length, and reducing it to the required form. The operation of giving colour to the threads or yarn is extremely simple. After arranging the given quantity for any one portion, it is barred across with the colour, and so on until each thread of yarn corresponds to that which in its united capacity is required to produce the pattern when completed. A thread of each is then taken and arranged on the beam; the bar or pile (*i. e.* the thin wire which forms the loop, and which, when cut, gives the pile a velvet-like appearance) is usually broader or deeper than the ordinary Brussels. The loom used is simple in design and construction; the huge timber-work of those of the olden time having given place to the same constructed of metal, and thereby made more compact. The yarns employed in the manufacture are usually printed in Halifax, and returned assorted or arranged on the beam, ready for putting into the loom, the design being supplied by the manufacturer of the carpet. Messrs. Pardoe, Hoomans, and Pardoe, however, print the yarn themselves.

Kidderminster is the grand centre of the carpet trade in England. The manufacture became located there somewhere about the year 1735, and the kind then produced was the common article known as "Scotch." Some years afterward the making of Brussels and Wilton carpets was introduced, and eventually the Brussels took the lead. In 1772, 250 looms were employed in the manufacture, which with the attendant drawboy, and spinners, dyers, &c., would give a fair amount of labour at that early period as having been engaged in the trade. Broom and Co. introduced the Jacquard loom, and with it came a superior class of goods, improved in texture and material. Royal Wilton, Genoa velvet, Axminster, Saxony, and super-Saxony carpetings, are also made at Kidderminster. Whytock's carpeting alluded to gave an impulse to the trade generally, but its production put a stop to the increase of the manufacture of the Brussels variety, What effect may ensue from the introduction of the new power-loom, as applied to the manufacture of the Brussels carpet, cannot be anticipated.—W. C. A.]

CLASS XXII.

GENERAL HARDWARE.

38 **FLAVEL, SIDNEY**, *Leamington, Warwickshire*, and 92 *Jermyn Street, St. James's*—Inventor and Manufacturer.

Flavel's patent kitchener.

The kitchener, as illustrated in the accompanying engraving, contains two large roasters next the fire, which, by opening valves at their tops, admit an upward and constant current of pure air, which carries off all steam, &c., into the flues, and the meat, when placed on the table, has an appearance and flavour which it is said is not to be surpassed by open-fire roasting. These roasters are sufficiently large to receive a haunch of venison. The next two compartments are ovens, or hot-closets, for keeping the viands warm when cooked, and may also, if required, be raised to the proper temperature for baking bread, pastry, &c. At the two extremities are grilling-stoves, of approved construction, for chops, steaks, &c.; and under them are two additional hot-closets, for warming plates, &c. The whole of these compartments are under perfect control, each having its separate flue and damper, so that the cook can at discretion use such parts as are required, without wasting fuel on the remainder. The hot-plate on the top is capable of boiling a number of steam-kettles, stew-pans, &c. Broiling or frying can be done at the opening over the fire, before which a joint of ordinary size may also be roasted, if the small half-door or blower be opened. At the back, behind the fire, is a large wrought-iron boiler, to contain 50 gallons, which affords an abundant supply of hot water to the kitchen, scullery, butler's pantry, also to the upper rooms, for warm-bath, if required. The efficiency of the arrangements for the latter purpose is such that a full warm-bath of 45 gallons may be obtained in five minutes; or a full supply of steam may be had for heating steam-closets, &c., as shown in the illustration on each side of the fire-place. The perfect cleanliness with which all is carried on is worthy of remark, and also the great saving of fuel effected, and it is also said to be a positive cure for a smoky chimney.

The patent kitcheners are made of all sizes, from 2 feet 6 inches in width to 12 feet and upwards, combining, according to size, any of the various compartments shown in the largest, so as to suit either the largest or smallest families.—P. 597.—Plate 414.

[The advantage arising from the adoption of close over open fire cookery is principally that of economy of fuel, every portion thereof doing its work, much of which in ordinary circumstances is lost, and escapes into the open air of the kitchen or cooking apartment, or passes away by the chimney. The saving is effected by the enclosure of the fire under a metal box or plates, the economical division of space, and a skilful arrangement of flues, which leads the heat under and over the several compartments or divisions: thus that portion of fuel which is employed in simply heating the masonry of the back may be, and is in the above instance, employed in the heating of water, for cleansing, culinary, and other purposes.

The earliest mention we have of the economic application of fuel in Rome is to be found in the works of Palladio, where he states, in addition to the heating of their houses by the Romans, "that the mouth of the furnace employed for the purpose, served also to dress their meat, and all along the walls were disposed kettles or other vessels, filled with hot water to keep the cooked victuals warm."—W. C. A.]

"The Jury are unwilling, as has been remarked, to offer any decided opinion on the comparative merits of the ranges submitted to them, and more especially as those merits are so generally uniform; but if they were to make a difference, they would say that the kitchen range of J. Flavel (38, p. 596), for appearance of workmanship, economy of fuel, and its combination of the stove and open fire, seems deserving of special notice."—*Juries' Reports*, p. 499.

102 **STUART & SMITH**, *Roscoe Place, Sheffield*—Manufacturers.

A register stove-grate in the Alhambra style, the ornaments bronzed, upon a blue ground.

This grate was purchased by His Royal Highness Prince Albert for Osborne House.—Plate 351.

A register stove-grate upon the patent principle of John Sylvester, Esq., C. E, exhibited as a specimen of elaborate workmanship and design.—Plate 320.

[By the invention of Mr. Sylvester the fire which was formerly placed so high, that by far the greater amount of heat evolved went up the chimney, is arranged upon the hearth, and the combustion of the fuel takes place on a metal plate, which lies on the surface of the floor and extends into the room. The greatest amount of heat is thereby radiated into the room at the level of the floor, so that the feet are always the warmest: the hearth is formed of polished metal-work, inlaid with brass. As a specimen of manufacture it was not surpassed in execution. Attention is directed "to the peculiar beauty of workmanship and general brilliancy of effect for which the contributions of this firm is distinguished. In this respect they stand pre-eminent: and it deserves also to be noticed that this house has, perhaps, more than any other, contributed to impart the highly ornate character which the stove grate manufacture possess at the present time." See remarks by the Jury in awarding the Council Medal].—P. 603.

"Stuart & Smith (102, p. 603). The Jury have had occasion, in a previous part of this Report, to remark the peculiar beauty of workmanship and general brilliancy of effect, for which the contributions of this firm are distinguished. In this respect they stand pre-eminent; and it deserves also to be noticed, that this house has, perhaps, more than any other, contributed to impart the highly-ornate character which the stove-grate manufacture possesses at the present time. The grates exhibited by them are for the most part manufactured on Sylvester's plan, by which the combustion of the fuel takes place on a metal plate which extends into the room and lies on the surface of the floor. In proportion as custom deviated from the primitive practice of making the fire upon the hearth, it lessened the comfort arising from a proper distribution of heat. When grates were placed so high as has, until very recently, been customary, the greater part of the heat evolved passed up the chimney, leaving the lower stratum of air (the coldest part of a room) in contact with the legs and feet. This is obviated by Sylvester's plan, which, besides, affords the advantages of greater cleanliness, and the facility with which the same grate can be adapted to burn either wood or coal. The metal plate on which the fire is made, extending, as it does, from the fire-place to the fender, admits of being highly ornamented; and Messrs. Stuart & Smith have shown how skilfully they are able to take advantage of its capabilities in that respect."—*Juries' Reports*, p. 502.

103 **EVANS, SON, & CO.**, 33 *King William Street, London Bridge.*

Improved kitchen-range, with bright wrought-iron vertical bars, framed, and made to open and shut as a gate, with rollers and hinges; double winding checks, with racks and wheel pinions, on an improved principle; two capacious wrought-iron dome-top boilers, for hot water and steam, with service-pipes, stop-cocks, &c.; polished iron fronts and hobs, with sunken leafage panels and mouldings; bright ashes grating; massive gun-metal hot-water cocks and levers; panelled iron plates at back, fitted with foot-doors; and dampers, for flues of boilers.

Improved double engine-turned smoke-jack, with bright shafts and gun-metal movement. Set of dangles, with bright elongating hooks and chains.

Set of polished spits, comprising the cradle, beef and poultry spits, with prongs and balance skewers.

Set of massive wrought-iron spit-racks, with bright pillar shafts and ornamental brass vase tops.

Improved hot-plate and broiling stove, combined, with polished iron slab top, flush shifting plates and covers, and bright front, with panel sliding doors and gridiron, complete.

Copper steam hot-closet, with double shelves, fitted into a bright iron case, with slab top and folding doors, with sunken leafage panels and mouldings, condense pipes and cocks.

Set of polished copper steam-kettles, for meat, fish, vegetables, gravies, and sauces, fitted with condense cocks.

Patent wrought-iron steam service-pipe, to convey steam from boiler to closet and kettles, with all necessary cocks and a patent safety-valve.

Improved capacious double ventilating oven, for meat, pastry, &c., with polished iron front, double sliding sunken-panel doors with leafage mouldings, rack shelves, furnace, and ashes door, deep moulded plinths, &c.

The above comprise a complete cooking apparatus, suitable for a nobleman's or gentleman's establishment.—P. 603.—Plate 413.

106 Jobson & Co., *Litchurch Works, Derby*—Manufacturers.

Patent bright steel light and heat reflecting stove-grate with gilt ornaments in the Renaissance style; it is considered to combine economy and efficiency in warming and ventilation; the reflector is moveable upon a slide-hinge for ventilation, taking out the ashes and sweeping the chimney.

This stove is now the property of His Grace the Duke of Devonshire.

The contributions of these exhibitors included also all kinds of bright and black register grates, fenders, fire-irons, plain and ornamental castings, &c.—Pp. 603 and 604.—Plate 370.

109 Johnson, Cammell, & Co., *Cyclops Steel Works, Sheffield*—Manufacturers.

Specimens of locomotive engine, railway carriage, carriage-truck, horse-box, van and waggon, bearing, buffer, and draw springs, with their respective stoops or boxes.

Improved springs for traction or buffing, elliptic and spiral.

Springs for road-carriages.

Various specimens of wrought-iron work, for hanging railway-carriages.

Specimens of files and rasps, for the use of engineers, machinists, smiths, and saw-makers; cabinet, clock, and watch-makers; silversmiths, jewellers, &c., including every variety of shape, cut, and dimensions, from 1 to 46 inches in length; also the concave and convex file, with continuous tooth, silversmith's rubber, 6 inches broad, supposed to be the greatest breadth of surface ever cut with the continuous tooth.

Cast steel locomotive piston-rod and cover.

The Cyclops Steel Works, of which only a portion is shown in the illustration, is one of the largest establishments for the conversion of iron into steel in the vicinity of Sheffield, and has long been celebrated for the quality of its manufactured products. Situated at the terminus of the Midland Railway at Sheffield, the lines of which are continued in every direction in the interior, and to the several points in the works, facilities are thus presented for the transit of the raw material for conversion, and thereafter for the dispersion of the converted material, or the manufactured article, to the several markets, where such are required. The proprietors of the works being converters, are enabled to exercise a complete control over the quality and quantity of the material converted. Shipments of Swedish iron received at the Eastern ports are transferred direct from the hull of the vessel in which they have been imported to the interior of the works, while coal, coke, and other bulky materials employed in the manufacture of steel, are conveyed in the same manner from the several localities where they can be purchased most economically. Within the Cyclops Works the several processes of rolling, tilting, forging, and grinding are performed, the producer of the finished article being rarely, if ever, the converter; the result is, as may be anticipated, an economy of time, labour, and material, operating in the production of an article excellent in comparison to its cost. The premises occupy an area of upwards of 10 acres. The rolling-mills, tilt-hammers, forges, and grinding-mills occupying buildings, requiring a great amount of space.

The rolling-mills are propelled by the agency of a pair of 50-horse-power engines: an engine of the same capability is required for driving grindstones and other machinery for the general purposes of the trade; other engines of corresponding power, for the hammering, tilting, forging, and drawing of steel. The requisite feed of the boilers (seven in number) is supplied by an independent engine: any one of the principal engines can be stopped when not required. Upwards of 1,000 hands are employed, embracing all degrees of talent and manipulative skill. The exhibitors were the inventors of the patent elastic cast-steel springs for railway and other purposes; they also produce "cemented blister" double shear, elastic spring, a double refined cast-steel, also the finished article in the shape of spring files, the curvilinear tanged file, being an improvement upon the common form of that tool: as also the continuous-tooth convex and concave file, which received the recognition of a medal from the Society of Arts. They supply also the engineering and machinists' files used in the national dock-yards, the Honourable East India Company's workshops, and other public and private engineering establishments.

One article claimed especial notice, viz., a cast-steel piston-rod, weighing 16 cwt.; one of the finest and largest pieces of steel shown in the Exhibition.—P. 605.—Plate 371.

[The amount of steel annually manufactured in England is stated to be twenty-five thousand tons, one-half of which is made from iron imported from Sweden and other parts of the continent of Europe, the remainder is obtained at home. The best steel hitherto made in England is that from Swedish Dannemora iron: as it is expensive, however, comparatively little of this is used; probably not more than twelve or fifteen hundred tons; the remainder is composed of Swedish, Norwegian, German, and Madras irons, for steel making. It is generally used in the form of bars, from half-inch thickness, varying from two to four inches in width. The operation of conversion, is performed by arranging the bars in what is called cementing-boxes, whose lengths vary from ten to twenty feet in length. Experience has led to the adoption of the small-sized boxes, as being most easily wrought, and the workmen appear to have more complete command over them. The boxes are formed of sand-stone slabs, which are joined together by fire-clay: these are at first gradually heated to expel the damp. They are then charged with iron as follows: a layer of the cement (the material which supplies the carbon, and assists in the conversion into steel); it consists of ground charcoal-powder and soot, and incorporated with these are wood-ashes equivalent in weight to one-tenth, and a little common salt. On this layer of cement, a layer of bars is placed edgeways, in such a manner, as to leave an inch of space all round; another layer of cement is filled in, and another layer of iron rods in succession, until the box is filled to within six inches of the top. Every crevice is filled with the cement, and the iron bars are in no instance allowed to touch each other; thereafter, cement of former operations is put on the top, and the whole finally spread over with the sand or grindings off grindstones, employed in preparing cutlery: this makes an excellent cement or lute, and impervious to the entrance of air. The heat is applied gradually, and plays all round and over the boxes and under the arched brickwork or oven under which they stand; the fire is gradually increased, and at the end of six days, if steel for coach-springs only is required, which requires a low degree of conversion, the heat is allowed to diminish, and the furnace to cool. Blistered steel requires a longer time. Next follows shear steel for cutlery, and steel for files. Cast-steel requires a higher degree of conversion than any other. The progress of the process of conversion is watched by means of what are called "test rods," which project from the end of the boxes and are drawn out for the purpose of testing; much care and experience are needed to prevent over-conversion, which reduces the wrought iron, by melting, into the state of ordinary cast metal.

Blistered steel being scarcely fitted for any purpose, it is re-heated and tilted. Previous to submitting the steel to the operation of the tilt, it is made up into fagots; that is, the blistered steel is broken into pieces of twelve inches long, which are ranged round another piece of the same material, but twice the length; the whole is bound together with a small steel rod; it is then heated to a cherry heat; while in the fire it is occasionally sprinkled with sand, which forms a protection against the impurities of the coal: in this state it is carried to the tilt and notched down, so as to unite the bars together, and close up every internal flaw and fissure. In the first heating, the welding is only partial, and after which the bindings are knocked off, and the pile or fagot again reheated. In the second heat, the welded bars are drawn out into a rod of the thickness required, which is generally an inch or an inch and a half square, and twice or three times the length of the original fagot. The bars of the first heat, which are common steel, are piled again to form shear steel; five or six of such bars are piled and held together as already described, and they are once more exposed to a welding heat in the first forge fire and imperfectly welded. This fagot is then by the long rod carried to a larger fire, where it is thoroughly welded and tilted at the heaviest hammer in the works, called the shear-hammer; if to make double shear-steel, it is cut in two, double welded together, and drawn out again. It may not be uninteresting to know, that shear-steel derived its name, not from its being particularly useful in making scissors, but because in the operation of cloth-dressing, a large kind of scissors were used for the purpose, and the steel now alluded to was well adapted to make the edge and spring of these shears.

Tilt-hammers are large hammers set in motion by steam or water power. Motion is given by a shaft, from which project snags which operate on the tail of the hammer-shank, as it moves on two pivots, the operation of which, is to elevate the hammer in the first instance, when it is released, and falls on the steel to be tilted. The face of the hammer and anvil, are of the best cast steel, well hardened and polished; a stream of air is constantly blowing on the anvil to keep it free from dust and scales. The smaller rods are tilted while the workman is sitting, the larger while standing. Tilting is a most important process in the manufacture of steel, and cleanliness is necessary to impart a good surface to steel bars.

Cast-steel is made by melting blister-steel in crucibles, selecting the most highly carbonized bars, as being the best suited for the purpose, owing to the loss of carbon which occurs in the process of melting. The steel is broken into small pieces and placed in smelting pots formed of Stourbridge clay; and in air furnaces a hard shingly coke is used as fuel. It requires four hours to melt. A cover made of pot clay fits the crucible. Before the steel is entirely melted, a little bottle-glass or pounded slag is thrown in, and this forms a cover on the surface of the melted steel, and excludes the atmospheric air. The use of melting is to secure a uniform grain. When the steel is thoroughly melted, the crucible and its contents are lifted out of the furnace, and the melted steel poured out into a cast-iron mould of the form required, square or octagon, or if to be made into sheets for saws, it is cast into flat moulds. When the ingots are cold, the moulds are opened, and the steel removed and brought to the tilt, where it is treated like other steel.—W. C. A.]

113 SPEAR & JACKSON, *Ætna Works, Sheffield*—Manufacturers.

Case of saws, files, edge tools, and steel, consisting of—

Large cast-steel circular saw, 5 feet diameter, and others of various dimensions, ground and polished by a newly-invented machine, and toothed with a dividing engine.

Spring steel hand-saw, 30 inches long, with polished blade, and French-polished ebony handle; German silver electro-plated shield and screws.

Hand-saws; and bright, blue, and brass backsaws, with polished blades, French-polished handles of various kinds of wood, and German silver, brass, or polished-iron screws. Mill-saws, pit-saws, cross-cut saws, segment and other saws suitable for the home and foreign markets.

Ledger-blades and spiral cutters for shearing cloth; sheep-slitting knives, hay and straw knives, tanners' and curriers' knives, and paper-knives. An assortment of files and rasps of every description.

American wedge-axe, with solid steel edge and French-polished rosewood handle.

An assortment of edge-tools, including axes, adzes, augers, mill-chisels, carpenters' chisels and gouges, and tools used by builders, joiners, carpenters, shipwrights, coopers, &c. Cast steel and shear steel of fine quality, in bars and sheets.—P. 606.—Plate 372.

"With respect to the United Kingdom, we find that articles in the class of cutlery and edge-tools have been sent from a great variety of places. In England, from London, Sheffield, Birmingham, Warrington, Stourbridge, and a few other towns of less note; from Glasgow and Edinburgh, but chiefly from the former, in Scotland; and from Cork, Clonmel, and Limerick, in Ireland. Among these seats of the manufacture there is none, as might naturally be expected, which, for extent, variety, and excellence of collection, can compare with Sheffield—its most ancient home. We here find every article, from the most exquisite razor down to the plainest pocket-knife, and from the finest saw or file to the most ordinary chisel, displayed, with various degrees of merit it is true, but with a large proportion of the highest.

"From this collection the Jury have thought themselves justified in awarding for one remarkable object a Council Medal. Messrs. SPEAR and JACKSON (No. 113, CL. 22, p. 606) have exhibited, among an assortment of edge-tools of great excellence, a cast-steel circular saw, of the large size of 5 feet diameter, and of such signal beauty and perfection, that it stands far above comparison with any other in the building. The mere excellence of its quality and workmanship, however, would not, the Jury are aware, have enabled them to distinguish it by a Council Medal, if they had not been able to satisfy themselves that its merits is the result of a new and peculiar process of manufacture. But they entertain no doubt, from the information they have received, that mechanical ingenuity of an ovel and special character has been employed by these manufacturers for the production of such articles, without which they could not be carried to equal perfection; and they therefore consider them justly entitled to the highest mark of distinction."—*Juries' Report*, p. 486.

140 HOOLE, ROBSON, & HOOLE, *Green Lane Works, Sheffield.*

Register stove-grate and chimney-piece of burnished steel, or-molu, and cast iron, designed in the Italian style of the early part of the sixteenth century. The spandril corners are purposely left as cast from the wax models without any chasing whatever, and show the work as originally produced by the artist. Fender in or-molu and burnished steel.

The Green Lane Works, Sheffield, were established about the year 1797, by the father and uncle of the present proprietor, Henry E. Hoole. One hundred and fifty men are now employed in the different departments, but chiefly in the middle and higher branches of the art. The purity and simplicity of the style of ornamentation, together with the excellence of the work, have obtained for this firm a high reputation.—P. 609.—Plate 352.

[The casting of this work demonstrates the purity and fluidity of the iron out of which the spandril corners were cast, and the care bestowed in the preparation of the metal on the part of the caster.—W. C. A.]

"Hoole, Robson, & Hoole (140, p. 609). The beautiful grates, fire-places, and fenders contributed by this firm have already been noticed. They are designed chiefly in the Italian taste of the earlier half of the sixteenth century, and display a subserviency of the execution to the intentions of the artist, to a degree which places them among the most remarkable contributions from the United Kingdom. The castings on some of these grates have been before alluded to; and it may be added here that there are, besides, some detached specimens shown as they come from the sand, which appear to be quite faultless. On the whole these works are distinguished for a higher and purer taste, and the application of a more artistic ornamentation, than productions of a similar kind have yet exhibited."—*Juries' Reports*, p. 502.

"Messrs. Robson and Hoole (Class 22, p. 609) exhibit several grates designed by Mr. A. Steevens, highly decorative in character, and of great general merit; two especially, fronting on the Central Avenue, designed in the Renaissance style, evince great artistic ability."—*Juries' Reports*, p. 726.

159 UNWIN & RODGERS, *Rockingham Works*, 124 *Rockingham Street, Sheffield*—Manufacturers.

Bowie-knives, American and Indian hunting-knives. Lock-dagger or dirk-knives suitable for the Continent, South American pistol knives with single and double barrels. Knife with 28 instruments for various purposes. Razors with ornamental handles.—Pp. 610 & 611.—Plate 373.

244 CROOK, WILLIAM, 5 *Carnaby Street, Golden Square*—Inventor and Manufacturer.

Improved open fire, hot-plate oven, boiler kitchen-range, and improved outside movement smoke-jack with dangle movement and cradle spit.

It combines the advantages of the close and open fire range, which are obvious, as affording ventilation to kitchens, and the absence of the unpleasant effluvium arising from heated metal.

The temperature of the oven is rendered equal all over by the heat from the roasting fire passing round it, and may be regulated by the damper to the heat required. Bread or pastry may be baked without burning; and meat dressed in this oven is not, it is said, to be distinguished in appearance or flavour from that roasted before an open fire. The oven being made to take out, the flue can be properly swept, thus insuring its action.

The hot-plate over the oven can be used for boiling, stewing, frying, preserving, &c.

The boiler will furnish steam for three or four steam kettles, hot closet, &c., or for warm baths in any part of the house in a few minutes, and hot water for servants' use.

This range can be made of any size, from 2ft. 6in. upwards, with the oven on either side.

Improved furnace stove for heating tailors' and hatters' irons. It is constructed to heat a larger number of irons in less time and with less fuel than the stoves in ordinary use. They are made of various sizes, to hold from 4 to 30 irons.—P. 620.—Plate 374.

323 POTTS, WILLIAM, 16 *Easy Row, Birmingham*—Manufacturer.

Grand boudoir-glass frame, bronzed, with two Naiads in parian, are seated to attire themselves; two herons supporting suspending pastile-burners.—P. 631.—Plate 312.

[The boudoir glass frame is formed entirely of cast brass, and bronzed; it is produced by sand-casting. The complicated and elaborate character of the ornament would add much to the difficulty of production, rendering false coring necessary to be extensively employed to produce it. Mr. Potts was the first to introduce parian china in connexion with brass-work; and in the object represented, the Naiad seated on each side of the glass is formed of that material. The whole work was carefully chased and finished, and approached if not equalled, in its ornamental features, objects of a similar class exhibited by the French, while in construction it surpassed their best works. It was modelled for, and produced at the request of, the Duchess of Sutherland,—the coronet, monogram, and motto indicating the armorial bearings of the owner.

Upwards of eighty workmen are employed in the establishment of Mr. Potts; a considerable portion of whom are engaged in the production of articles in bronze of a recherché kind,—a class of manufacture hitherto but little cultivated in England.—W. C. A.]

"Single examples on the British side, for instance from the collection of Potts, &c., may be placed side by side with the French without disadvantage to the former."—*Juries' Report*, p. 498.

324 GILLOTT, JOSEPH, *Victoria Works, Birmingham*—Manufacturer.

Case of steel pens, showing the various shapes and sizes as manufactured by the exhibitor.

It may be interesting to many who are daily using this useful article to know something of the process of its manufacture, and the various stages it passes through in its tranformation from a ribbon of steel to a finished pen. The process of rolling and cutting steel has been already described, we may therefore proceed to the advanced stage when the metal is cut into strips, put into cast-iron boxes, and placed in a "muffle," where they are annealed or softened by heat. These strips are now fit to be rolled into the thickness necessary for the pen. The rolls consist of metal cylinders revolving on each other. A man and boy attend at each; the first introduces the slip of steel between the opposing surfaces, and the boy on the opposite side receives it considerably reduced in thickness and increased in length. In this state it is ready to be cut into pens by means of a press, in which are fitted the proper tools for cutting out the "blank." The use of the press is to give a regulated amount of pressure to the tools fitted to it. These presses are worked by women, who are so dexterous that the average product of a good hand is 200 gross, or 28,000 per day of ten hours. Two pens are cut out of the width of the steel, the broad part to form the tube; and the points are cut to such a nicety, that there is but little waste. The "blanks" are now taken to be pierced, and here the little central hole and the side slits are cut by another press. These semi-pens are now placed in a annealing oven, to make them softer, after which they are "marked," by the aid of a die worked by the foot, which stamps the name of the maker on the back. The half-finished little instrument is then placed in a groove, and by a machine converted from a flat into a cylindrical form. This is called "raising" the metal. The pens are again placed in the "muffle," packed in small iron boxes with lids, and heated to a white heat. They are then withdrawn, and suddenly thrown into a large vessel of oil, where they acquire a brittleness that makes them almost crumble at the touch. The next process is "cleaning," then follows "tempering," which restores the pens to the required elasticity, and is accomplished by placing them in a large tin cylinder, open at one end, and turned over a fire, in the same manner that coffee is roasted. The heat changes the colour of the pens, first grey, then straw colour, next to a brown or bronze, and lastly to a blue. Still there is a roughness to be removed from the surface, which requires the pens to be placed in large tin cans, with a small quantity of sawdust. These cans are horizontally placed in a frame, and made to revolve by steam, the pens rubbing against each other, by which means they are cleaned. After the "scouring" (which consists in placing the hardened pens in an iron cylinder which is filled with pounded crucible or other abrasive substance—the whole revolves by power and the friction produces a bright clean surface on the pen) process, they are taken to the "grinding-room," where each individual pen is ground at the back in two ways, at right angles to each other, or rather over each other, the quality of the pen very much depending upon this operation. By the aid of a pair of nippers, the girl takes up the pen, holds it for a moment or so on a revolving "bob," and the grinding is over. Now follow the pen to the "slitting-room," where it is placed in a press, where the process is instantly effected. The pens are next examined, and sorted according to their qualities; after which they are varnished with a solution of gum, when they are considered ready for sale.

The Exhibitor was the first to establish a manufacture of that useful little instrument upon anything like a scale of magnitude, and, consequently, to bring it into almost general use. The contents of the case, which form the subject of the illustration, consist of pens of almost every possible form, from the magnum bonum to the smallest, which require a microscope to examine its workmanship. The large pen weighs five pounds, and measures one yard in length; the Lilliputians are about four grains in weight, and are simply illustrative of the ingenious power of the machinery employed in their manufacture. The large pen contains sufficient metal to make 1,092,397 of its diminutive likeness, yet both varieties are cut in all their parts with the nicest precision for use. Not the least remarkable feature in this contribution is the colouring imparted to the metal, which is fine and rich, equalling some of the metal-foiling of France.—P. 631.—Plate 375.

[Some idea as to the employment of the population of our great manufacturing cities may be gathered from the fact, that in the production of the single article of steel pens, at the Graham Street Works, upwards of 1,000 pairs of hands are employed: the majority of these are females; but the manufacture of the various tools by which the pens are made, and upon which depends the perfection of the finished article, is assigned to skilled and ingenious workmen, well initiated and practised alike in the simplest and most complex combinations of mechanical arrangement. To this alone is attributable the great perfection and elasticity of the steel pen now produced, as opposed to the hard and unyielding implements sold and dignified by the name some twenty or thirty years ago. The systematic arrangement and increase of the manufacture have had still further the effect of increasing the comforts of those engaged therein, in a physical and moral point of view. The well-ventilated, lofty, and spacious shops of the exhibitor are alike favourable to, and suggestive of, personal respect and cleanliness on the part of the workpeople: the result is as might be anticipated, and is shown in the neatness of the personal attire which distinguishes the majority of those employed in the works. Young females earn from 4*s*. 6*d*. to 7*s*. per week; others more skilled and apt, and engaged in the more important processes, earn from 10*s*. to 14*s*. Workmen employed as tool and machine makers realize handsome wages. In May 1851 the number of pens produced in the works amounted to upwards of 180 millions annually, and the weight of the sheet steel consumed in their manufacture to not less than 268,800 lbs., or 120 tons. It is remarkable that, with all the delicacy of manufacture which is so characteristic of French workmen, hitherto in the production of steel pens as a manufacture the French as a nation have been unsuccessful; the majority of those sold in that country, though bearing external evidence of their home manufacture, are really not so, but are made in Birmingham. France is one of the markets which takes the greatest supply, next follows America. Manufacturers distinguish the orders from the two countries by the mode in which they are made up: those sent to the former country being neatly assorted in packages or fancy paper boxes; to the latter, the expense is avoided by making them up into bags.—W. C. A.]

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373 R. W. WINFIELD, *Cambridge Street Works, Birmingham.*

(COUNCIL MEDAL for brass-foundry work and metallic bedsteads with taper-drawn pillars.)

Chandelier in the cinque-cento style, elaborately chased, and suspended from a bracket supported by two figures; the bracket surmounted by a Cupid and figure of Innocence. Purchased by Her Majesty, and fitted up at Osborne House.—Plate 383.

[The above is a good illustration of the excellence of ornament and the mode of treatment adopted by the artists of the period: masques and foliage, delicately relieved, cover the surface of the body; wreaths of flowers adorn and are pendant from the prominent parts; Cupidons cluster round the stalk: others support the nozzles for the candles; while Cupid, bow in hand, aims his darts against Innocence, who clasps her arms across her breast, to avert, if possible, the consequences.—W. C. A.]

Dorothea lily bracket, with parian flowers and statuette introduced, fitted for gas. Purchased by Her Majesty, and presented to the Prince of Prussia.—Plate 381.

Tripod in the cinque-cento style: chimney-piece lights, with parian, introduced.—Plate 386.

[In the tripod, advantage has been taken of the peculiarities of the style to introduce, upon its base, medallion portraits of Chaucer, Bacon, and Purcell, as indicating the Poetry, Philosophy, and Music of England. On three shields are introduced the heraldic insignia of England, Ireland, and Scotland. The angles of the base are surmounted with three infantile figures, representing Art, Science, and Industry; from this rises a stem, on the apex of which is an elaborately-coated and cut glass dish, to contain flowers; under this, the arms for the support of lights project, from which are pendant chains, &c. The whole surface is covered with minute ornamental scroll-work, in delicate relief, and in keeping.—W. C. A.]

Or-molu chandelier, with basket-work, foliage, birds, and figures introduced, pendant wreaths, &c.—Plate 385.

Elizabethan chandelier, in bronze.—Plate 384.

Child's cot, with figure introduced to support the drapery.—Plate 379.

[This is entirely cast, the original having been previously modelled in wax. The cast from it, after being chased and repaired, is moulded in sand, and a copy of it is produced. The several parts, after having been fitted together carefully, are chased, dressed up, and finally cleansed by "dipping," burnished as already described (note to No. 261, Cl. 22, p. 622), and protected by lacquer from oxidation.—W. C. A.]

Brass bedstead, in the Renaissance style, with figures introduced symbolical of Sleep; clothed in green silk damask.—Plate 387.

[This is also produced by casting from metal models, prepared as explained in the annotation to the previous illustrations. In this object, however, occur several difficulties in the complicated and elaborated relief in certain portions, as, for instance, the figures which surround the posts: this is obviated by increasing the number of pieces in the sand mould, which are removed when completed, and the pattern, or model, lifted out. When the pieces of the mould are replaced, the mould is dried, closed, and bound together by "wood clamps," or "screws," provision having been previously made for the admission of the metal, which is composed of due proportions of copper and zinc smelted together in an air furnace; coke being the fuel used: the metal is contained in a Stourbridge clay crucible. When at a proper temperature, the crucible and its contents are lifted out, carefully skimmed on the top, to remove any extraneous matter, and poured into the apertures left for its admission; after being allowed to cool for a few minutes, the screws are loosed, the mould separated, and a correct copy of the original model will be found produced.—W. C. A.]

Brass bedstead, in the Elizabethan style. Japanned iron tent square-top bedstead. Rocking-chair formed of tube.—Plate 380.

[These bedsteads are chiefly remarkable for their stability when up, and the ease with which they are put together; two recommendations arising from improvements forming subjects of patents, the former accomplished by the exhibitor, in his invention of a continuous pillar, in connection with his application of the dovetail joint.—W. C. A.]

Brass bedstead, in the Ionic style. Portable bedstead, for travelling purposes. Arm-chair.—Plate 382.

[The peculiarity in the above articles is the ease with which the two last may be taken to pieces and packed in an exceedingly small space, being very useful for travelling purposes, and, as such, suitable for military and other gentlemen who are not remaining permanently in one place. The several portions are constructed of the best material, no cast iron being used. The Ionic bedstead is remarkable from the grooved pillars being tapered, and yet drawn by an ordinary draw-bench: this is effected by employing a tool composed of a metal which allows the tube and its mandril to pass through, and opens as it advances, the counteracting effect being sufficient to compress the metal case to the mandril, of whatever form. In this manner reeded, fluted, octagon, or spiral taper tubes may be produced. The mode was first applied by John Ward, a workman. It forms the subject of a patent used exclusively in these works.—W. C. A.]

Patent stamped brass-work, as curtain-bands, cornice ends, and cornices, with glass ornaments introduced, consisting of lily, fuchsia, and mallow; curtain-holders, with cornice ends to match the blossoms, being glass; cornice formed entirely of brass, mallow-pattern.—Pp. 639, 640. —Plate 378.

[These goods are produced by stamping from previously-rolled sheets of metal. The dies used are steel. The impression is given by a heavy hammer, moving steadily between two iron bars or poppets. The die is attached to the bottom of the stamp by screws. The corresponding part or "force" to the hammer is changed repeatedly, and increased in convexity, until the details of the steel die are clearly and distinctly impressed on the metal. Annealing takes place between each blow. The final cleansing is given by "dipping" in acid, "burnishing" by steel burnishers, and protected from discoloration by being covered with lacquer applied with a camel's hair brush, while the article is heated on a stove prepared for the purpose.—W. C. A.]

Glass in connection with stamped brass-foundry, in the form of blossoms, leaves, flowers, and fruit, was first applied by Mr. W. C. Aitken, one of the Superintendents of these works; it forms the subject of a patent.

In alluding to the award of the Council Medal, it is stated: "Reference has already been made to the collection of brass-work contributed by R. W. Winfield, of the Cambridge Street Works, Birmingham, as displaying very perfect workmanship, with a moderate amount of ornamentation, particularly in the manufacture of metallic bedsteads, for which he has earned a deservedly high reputation. His improvement in the construction of these by means of a continuous post, which obviates unsteadiness and loosening of the joints, is deserving of attention, as well as the twisted spiral and plain tapered pillars or tubes, employed for that and other purposes, which are produced in a peculiarly ingenious manner, invented by one of the workmen of the establishment.

"This house has also had the merit of introducing the combination of plain, opal, or coloured glass, with stamped brass-work, by which flowers, blossoms, buds or leaves in glass, are made subservient to purposes both of utility and ornament, in the manufacture of cornice pole ends, curtain holders, &c., &c."—*Jurors' Reports*, pp. 479 and 503.

The Cambridge Street Works, Birmingham, from which emanated the several works which form the subjects of the accompanying illustrations, is one of the most extensive in England engaged in the manufacture of the various useful and ornamental articles produced in brass, the manufacture of objects in which has secured for the town and district a widely-extended reputation.

These works were commenced on a comparatively limited scale, in the year 1820, but the demand for articles of a superior class, and the addition from time to time of new objects, to suit the requirements of the advanced state of society, have gradually caused their extension, until, at the present time, the ground covered by the buildings exceeds two acres. One cause of the extension of these works may be attributed to the demand which arose for metallic bedsteads, consequent upon improvements in their construction, with the advantages arising from their cleanliness and the smaller amount of space taken up by them in ordinary-sized apartments. The portable kinds also were more generally adopted by the officers in the army or navy: of this variety the exhibitor became the proprietor by purchase. Few bedsteads in the early periods of their manufacture were made of brass or iron tube for house purposes: being screwed together they speedily became loose in the connections, and were therefore really objectionable. This defect was, however, removed and obviated by the exhibitor, in his application and invention of a continuous tube pillar, made parallel or taper, and formed of iron, brass, or iron cased with brass, and recently the external diameter of which is reeded, fluted, or spiral twisted. This invention rendered metallic bedsteads as firm as those constructed of timber, while they could be produced quite as elegant in design, and equally massive and ornamental. The improvement alluded to by the saving of labour materially assisted in reducing the cost, and upon it the metallic tube bedstead trade has been founded. Another cause of the increase of the works may be attributed to the more general introduction of gas into the various towns in the United Kingdom, and also to those on the Continent, the fittings for which has been manufactured in these works. Some idea of the extent to which operations are carried on will be gathered from the fact that in the course of the current year not less than 156 tons of copper, and 50 tons of zinc or spelter, were consumed in the manufacture of brass, which, in the form of wire, sheet metal, tube, or ingots for casting into other forms, is consumed in the works or distributed by sale to brass-founders and others, whose comparatively limited conveniences preclude their producing the metal in its semi-manufactured condition. In the manufacture of metallic bedsteads, during the year not less than 350 tons of bar and rod wrought iron entered into their construction, while 120 tons of cast iron were used in connexion therewith, to produce the corners and ornaments. 16,000 lbs. of acid were consumed in cleansing the various portions of brass-work; and 900 gallons of lacquer or spirit varnish were required to preserve the several articles fabricated from oxidation or tarnish, consequent on exposure to the atmosphere. A steam-engine of 130-horse power, attached to the rolling mill, gives motion to the rolls, which break down and convert the cast strips into sheet metal, which is finally made into tubes, stamped brass-foundry, and drawn into wire, &c. Three other engines lend their aid to lathes, draw-benches, and polishing, punching, and drilling machines. 700 pairs of hands are constantly employed (50 of which are females), 82 being connected with the production of brass, cased on iron, patent taper-drawn and other tubes, stair-rods, brass beading, mouldings, &c.; 252 in gas-fittings, consisting of gazaliers, tripods, chimney-stands, pillars, and brackets, in the various styles of ornament, ancient and modern; in bedsteads, stationary and portable, of every variety, chairs, tables, &c., and other varieties of metallic furniture, 171; in general brass-foundry, railings, balustrades, shop-front mountings and mouldings, cornice-poles, patent, and ordinary stamped brass-foundry, consisting of cornice-ends, curtain-bands, cornices, &c., 97; in building, carpentry and repairs, the preparation of mouldings, packing-cases, and other operations of a similar kind, 92; in packing and despatching the finished goods, 9. Included in the above enumeration, are 2 designers and modellers engaged in the preparation and modelling in wax the new designs; 10 chasers and repairers, to prepare the patterns suitable for casting from; and 1 copper-plate engraver. In accordance with the spirit of the age, a school has been established for the education of the youths employed in the works. A lofty, well-aired, and spacious school-room has been built for the accommodation of the pupils, of whom 160 are entered upon the books; 140 attend regularly, upon an average. Reading, writing, and arithmetic are taught; the Bible and the Class Books used by the Society for Promoting Christian Knowledge being adopted. Annual examinations are held, and those pupils who distinguish themselves by ability or good conduct are rewarded. In addition to the above classes, a limited number of pupils attend a class for instruction in elementary drawing. This was instituted as an experiment, and as an auxiliary to the Government School of Design. The result of the experiment has been most satisfactory; several of the pupils have been transferred to the School of Design, and have been among its most successful students. They are engaged in the works as modellers and chasers, where it is evident that an intelligent and inquiring spirit has been fostered, and is manifested in matters connected with ornamental art in matters of business.

The Board of Trade, through the Superintendents of the Department of Practical Art, having expressed its desire to assist in the institution of Elementary Drawing Schools, it is desired here to record the value of such schools, founded upon the experience gained by six years' trial. Schools of Design, as they now exist, are necessarily limited in their accommodation, and as such should be filled by those students who are best able to appreciate the higher class of instruction, which ought to be given therein; but the progress of art, as applied to industrial purposes, must necessarily be slow, if some more extended means of giving instruction in drawing is not provided, and these Elementary Schools will materially assist in promoting this object.

Habits of prudence and economy are encouraged by a sick and burial club: a small weekly payment to which affords, in cases of sickness, a weekly allowance, and, at death, a sum sufficient to defray the expense of interment, &c.

It is gratifying to record that the result of the efforts made towards the improvement of the workpeople employed in the works is very satisfactory, and is proved by the regularity with which their attendance is given; cases of inebriety seldom occur, instances of dishonesty are rare, quarrels exceptional matters, and it is pleasing to record, that the half-hour allowed in the afternoon for tea, is now being devoted to the perusal of innocently amusing, or instructive books. The "Leisure Hour," has a fair circulation; the Tracts of Messrs. Chambers are also favourites. The cause of temperance progresses, and can be traced in the substitution of coffee or tea for beer, as a beverage at the hour alluded to; these various manifestations tell favourably in behalf of the exertions made to elevate the working class.

380 GODDARD, HENRY, *Nottingham*—Inventor and Manufacturer.

Patent economic cooking apparatus. This cooking apparatus consists of a surface or hot-plate, upon which as many vessels may be kept boiling as will stand thereon without soiling or injuring them; it is also calculated for an ironing-stove.

It has a well-ventilated and spacious roaster and pastry-oven. Meat, game, poultry, bread, and pastry, cooked and baked therein are said to be decidedly better, as regard flavour and appearance, than such roasted before an open fire or baked in the best-constructed brick oven. The arrangement of the valve, it is considered, acts favourably upon pastry of all descriptions.

It has a large boiler with a tap in front, which may be filled either by hand or by a cistern.

Connected with the apparatus is a moveable plate-rack for warming plates and dishes, or airing linen, &c.

The construction of this cooking apparatus is such that it can be used as an open fire-range, a close stove, or a semi-close stove. The facilities afforded by it in the various departments of cooking, the economy, simplicity, and convenience of its operations are said to be unequalled. It is free from dust and smoke, the latter being entirely consumed when used as a close stove, and acts as a cure for smoky chimneys. It will work with equal facility with wood, slack, ashes, coal, coke, &c. It is made in a variety of sizes, from 3 feet to 9 feet, with two or more ovens, back boiler, tin steam-kettles, hot closets, pastry-ovens, broiling and grilling stoves, &c., as required, and with extra apparatus for warming baths or conservatories from the same fire.—P. 640.—Plate 388.

384 YATES, HAYWOOD, & CO., *Effingham Works, Rotherham, Yorkshire*, and 200 *Upper Thames Street, London*—Manufacturers & Proprietors.

Drawing-room register stove-grate and fender to match, in or-molu and burnished steel, combining the appliances of science to a modern English grate, and uniting some novelties with the palatial character of the middle ages; with mantelpiece executed by Mr. Hartley, Westminster Marble Works.—P. 640.—Plate 411.

686 FEETHAM, MILLER, & SAYER, 9 *Clifford Street, Bond Street*.—Designers and Manufacturers.

A handsomely ornamented stove grate and fender, in the Italian (Cellini) style, adapted for a state room in a palatial or baronial mansion. The bars and fire-dogs composed of bright malleable iron, wrought into ornamental form, and richly mounted with or-molu. The back is a highly ornamental arrangement of a shield, supported by chimeræ and serpents. The sides or coves of the fire-place are of porcelain, richly painted in imitation of jewel-work. The fender is of corresponding design and materials.—P. 666.—Plate 348.

["Fire-dogs" formed at one period features of ornament and utility in the palaces and halls of the land. They served to support the ends of the huge logs of timber from which heat was derived previous to the introduction of coal as a fuel. In addition to their usefulness, they were also ornaments, and upon them the artistic taste of the period was exercised in devising forms at times grotesque, at others curious. In the present instance they are introduced not so much for purposes of utility as to add to the completeness and keeping of the stove they accompany.—W. C. A.]

690 Rodgers Joseph, & Sons, 6 *Norfolk Street, Sheffield* —Manufacturers.

Sportsman's knife, containing eighty blades and other instruments, of the finest cast-steel, highly worked and polished, the surfaces ornamented with gold inlaying, etching, and engraving, representing various subjects, including views of the Exhibition Building, Windsor Castle, Osborne House, the Britannia Bridge, &c. The handle is 12 inches long, of mother-of-pearl, carved with subjects emblematic of the chase, from designs by Wehnert; one side represents the death of the stag, the other that of the wild boar.—P. 667.—Plate 335.

[The ornamentation of the blades of knives, razors, &c., by etching, is readily accomplished. The blade is either painted with a material capable of resisting the acid, (the parts required dead being left out,) or the entire blade is covered, and, as in ordinary etching on copper, the surface is then exposed by the use of etching needles: the former method gives the greatest breadth of effect, the latter the most perfect detail. When the design is completed, the article is subjected to the action of acetic acid until the design is sufficiently distinct: the acid is neutralized by washing in water; and the ground being removed, the representation will be found in depth corresponding to the time allowed and strength of the acid.—W. C. A.]

797 Dixon, James & Son, *Cornish Place, Sheffield*—Manufacturers.

Powder and pistol flasks and shot-pouches ornamented with silver. A great variety of patterns and sizes illustrating several simple and other contrivances for quick loading in powder flasks and shot pouches.

Dram bottles used by travellers and sportsmen.—P. 669.—Plate 354.

[Powder flasks are usually made of sheet copper, and stamped in two halves, in the manner already described under Stamped Brassfoundry; the two halves are checked or soldered together up the side. In the construction of the collar or top, from which project the measuring tubes, some little ingenuity is displayed. The three in the centre and top of the illustration are fitted with a circular or elliptical spring, which bears upon the thumb-bit, and thereby closes the aperture, preventing the escape of the powder. The spiral check admits of the charge being increased or diminished. The operation is simple: the point of the finger is to be placed at the end of the charge-pipe, the thumb pressed against the projecting snag, the flask turned up to allow the tube to be filled, after which the snag is released and the charge remains in the tube. The other two varieties operate by means of a piece of metal moving in the centre, and to each end of which is a small flap, which alternately opens and shuts as the charge is received from the flask and deposited in the charge-tube. The very delicate-coloured bronze is the result of an oxide which is made to adhere artificially to the copper; it is brushed with rouge-powder, which materially improves its appearance.—W. C. A.]

802 Robertson, Carr, & Steel, *Chantry Works, Sheffield*—Manufacturers.

Ornamental cast-iron mantlepiece, in Berlin black, with dining-room grate and fender complete.—P. 670.—Plate 418.

["Berlin black" is a varnish or japan applied with a brush, and has the property of covering without interfering with the sharpness and delicacy of the details of the casting. The iron ornaments and castings imported from Berlin were covered with a coating somewhat similar; hence the designation.—W. C. A.]

804 Kennard, R. W., & Co, 67 *Upper Thames Street, London*, and *Iron Works, Falkirk, N. B.*—Manufacturers and Proprietors.

Heraldic coat of arms of the United Kingdom in cast-iron, with inscription on the base, 8 feet 4 inches by 6 feet. The arms of the three kingdoms may be had on a shield arranged quarterly.—Plate 391.

Royal British coats of arms in cast-iron, with appropriate motto and inscription on the base, in sizes from 1 foot 10 inches high by 1 foot 10 in. wide, 2 feet 2 in. high by 2 feet 8 in. wide, and also 4 feet 6 in. high, and 5 feet wide, cast straight or circular for corners, with or without flags.

They are well adapted for Government buildings, shop-fronts, and various decorative purposes.—P. 670.—Plate 392.

[Castings are produced in iron by the same means as are employed to produce those in brass or bronze. Three distinct varieties of processes are, however, understood by the trade. The first called green-sand casting, in which the sand is used as it is taken from the original bed. The second, dry-sand casting: in this, after the moulding of the article has been completed, the box with the impression is passed into a drying-stove, where the damp in the sand is evaporated. The third variety, or loam moulding, is executed in the following manner: an inner core of brick-work is coated with loam (composed of clay, sand, hair, &c., mixed up into an adhesive mass); this is smoothed into the form of the interior of the vessel or object desired. A sheet or thickness of loam is then spread, corresponding to and representing the thickness of the casting itself: this having been smoothed and shaped by templates to the required form, if circular, or wrought with trowels or other tools, if of a more complicated shape, then follows a coating of loam again, and upon this is built an outer dome or covering of bricks. The whole is now dried, and the middle coating is broken away, which creates a space corresponding in form to the object desired, and into this, when the mould is closed, is poured the melted metal. Not unfrequently, however, in the casting of cylinders, tubes, and pillars or columns, such as were employed in the construction of the Crystal Palace, a union of sand and loam casting occur, the hollow being formed of a core, in the centre of which is an iron rod, upon which a hay rope has been wound: on this loam is coated, dried, turned down smooth, and in size corresponding to the hole or opening down the centre of the casting; the hay rope alluded to allows of the escape of the gas generated. The casting, after being suitably dried, is laid in the print of the mould; the space left round it, and made by the pattern, is filled with metal, but the core presents an obstruction to the metal which flows round it: on cooling, the core is broken out, and a tube or hollow column is the result. In sand-casting in iron the principal requisite is a sand almost perfectly silicious, and without the presence of clay, or at least with as little in it as possible; its absence seems to allow the escape of the gases generated by the melted metal, which, if not provided with sufficient means of exit, would most undoubtedly injure the cast in its solidity, or cause the metal to blow back by the runners. The sand impression from the model is frequently dusted with charcoal powder to improve its capability of copying the finer lines and details; at other times, after being dried in the stove, the mould is smoked or torched from the flame of a link composed of flax and tar. "The heraldic coats of arms" exhibit, in parts, examples of the greatest difficulties which can present themselves: these consist of a series of under-cuttings or overlaying projections, the copying of which is attended with very great difficulty, and by making the moulds in several parts (in technical language "false coring"), the sand selected is free, yet adhesive, may be cut into slices, and yet adhere together. The consistency which the sand attains when beaten into the casting-box or flask can only be understood by those who have witnessed the operation of moulding; the workman fearlessly turning the mould in all directions, and yet the convex portions of the most delicate projection does not separate, provided the sand is of a proper kind, and well mixed. Some castings require hundreds of cores, and not unfrequently days are spent in making the mould. Iron flows with the most perfect fluidity into the most minute apertures. Chains made of this material, and cast about five feet in length, consisting of nearly 200 links, have been found to weigh not more than 1¾ ounces. Tripoli has been recommended as being admirably fitted for moulding small delicate objects. Iron-melting may be effected by an ordinary brass-founder's furnace, or what is called a cupola, viz., a large and peculiarly-constructed furnace, into which a blast of air, propelled by fanners, is employed to increase the intensity of the heat. Cokes are used as fuel. The metal as it melts collects in a receptacle at the bottom of the furnace, which is tapped and received in double-handed ladles, by which it is conveyed and poured into apertures of the flasks, or where the article is large the stream of molten iron is directed at once into the mould.

Falkirk and the surrounding country has long been celebrated for the excellence of the iron castings produced there, more particularly for those of large size. In this district the hot-blast of Neilson was first introduced with most complete success.—W. C. A.]

CLASS XXIII.

PRECIOUS METALS, &c.

1 **ELKINGTON, MASON, & CO.**, *Newhall Street, Birmingham*, 20 & 22 *Regent Street*, and 45 *Moorgate Street*, *London*—Inventors, Patentees, Proprietors, and Manufacturers.

Vase, intended to represent the triumph of science and the industrial arts in the Exhibition. The style is rich Elizabethan. The four statuettes on the body of the vase are Sir Isaac Newton, Lord Bacon, Shakspeare, and Watt, representing Astronomy, Philosophy, Poetry, and Mechanics. On the four bas-reliefs, between the figures, the practical operations of Science and Art are displayed, and their influences typified by the figures on the base, representing War, Rebellion, Hatred, and Revenge, overthrown and chained. The recognition and the reward of these ennobling pursuits are symbolised by the figure of His Royal Highness Prince Albert, on the apex, who, as originator and patron of the Exhibition, is awarding the palm of honour to successful industry.

Height of vase, four feet; designed and modelled by William Beattie.—Plate 394.

The hours' clock-case in electric-bronze, designed and modelled by John Bell. The object of this specimen of metal work has been to apply a purely sculpturesque composition to the purpose of a clock-case.

The hours' circle round the dial, day and night below, together with a representation of rocks and sea, and a pierced ornamentation, emblematical of twilight, support the composition, which is surrounded above with the veil of heaven set with stars. The enamelled dial represents the sun, its centre a flying phœnix, which, the fable relates, is born anew every five hundred years. The body of the composition, thus representing Time, is surmounted by a figure of the Soul, superior to Time, personified by a Psyche flying upwards.—Plate 396.

Silver gilt tankard, designed by Jeannest.

Silver salt-cellar, "Louis Quatorze," by Jeannest.

Vase in oxidized silver, a reproduction from the original, discovered at Monte Cognuolo, near the ancient Canuviuno, on the site of the Villa of Antonius Pius, in the collection of the British Museum.

Ink-stand, gilt and oxidized silver, "Slaughter of the children of Niobe."—Plate 397.

Centre-piece in electro-plate, which may be used as an epergne or candelabrum; cupids swinging.

Grecian wine-cooler and claret jug, after the antique.

Flower vases, sea-horses, glass shell, aquatic birds, &c.

Chamber candlesticks, lotus leaves.—Plate 393.

Tea service, kettle, stand, and tea-tray, richly engraved style Arabesque.—Pp. 671, 672.—Plate 395.

[Among the many branches of industry represented in the Great Exhibition, there was probably none which excited greater interest in the man of science and the manufacturer, and certainly none which showed a more rapid and striking improvement, than the results of the art of electro-metallurgy as displayed in the electro-plated goods of the present exhibitors. Ten years have scarcely elapsed since small objects, coated and produced by the aid of electricity, were shown as curiosities, and its application to useful purposes was then considered by many as problematical. Fortunately, however, for science and the arts, it was determined to show that in the application of this subtle and mysterious power for reproductive purposes, lay one of the most powerful agents for the promotion and dissemination of a love of the fine arts, and in some instances for the multiplication of the comforts and luxuries of domestic life. It would have been somewhat extraordinary, if such a process, threatening as it did a revolution in the art of working in the finer metals, had escaped opposition; and it would have afforded an extraordinary contrast to the treatment to which originators or inventors of any new principles and discoveries are generally subjected, if much vexation and disappointment had not been at first endured. The objections of manufacturers to the use of the apparently more difficult process of employing hard and white metal in place of soft and yielding copper, of hard instead of soft solder, that the metal would peel off, that plain surfaces could not be produced, that raised edges and ornaments would not stand the wear:—all these various objections which the manufacturers of the old plated wares could urge, and the difficulties which retailers threw in the way of disposing of electro-plated goods, have in the end been entirely removed.

Considerable additions have been made recently to these works: though commenced within the last few years, they already employ seven hundred work-people. The works are divided into two branches—one for the manufacture of plated and gilt articles generally, including the working of the patent processes; and the other for the more especial production of articles of a higher and more recherché character, such as reproductions from the antique, copies of celebrated articles of virtu, bronzes, &c.

A third branch has been added for the manufacture of forks and spoons by a patent process, which employs a great number of hands, the machinery being so perfect that several hundred dozens can be produced in one day. A piece of metal placed in one portion of the machine, having undergone various operations, appears at the other side as a finished article, of the ornamental shape or design required. From this some idea may be formed of the progress which this interesting manufacture is making at the present time.

The whole of the electro-plated articles manufactured by this firm are composed of an alloyed metal, composed of a mixture of nickel, copper, and zinc, the introduction of which is one of the most important improvements in connection with the manufacture, as this alloy is of greater hardness than silver, and its colour approaches exceedingly near to that metal. When castings are required, the metal, as in other cases, is used in a melted state, and is poured into sand-moulds, previously prepared for it: large or complicated objects, such as the Exhibition vase, are cast in separate parts, which are afterwards joined by hard solder in the same way as a silver article. Where surfaces are required to be finished perfectly plain, the raising is procured by stamping the form out of a piece of metal previously laminated or rolled. In such cases, the pattern or form is cut upon steel, afterwards hardened, which forms the die; these being placed under the hammer of a stamp, moving between two perpendicular rods, and falling with great force upon the sheet of metal placed under it, compresses it in the form or design sunk in the die. The extensive demand for electro-plated goods thus produced has led the exhibitors to introduce a modification of Nasmyth's steam-hammer, which they now use in this portion of the preliminary process. Smooth surfaces are obtained by the usual process of hammering: the various parts of an article, such as handles, borders, spouts, and ornamental cast-work, &c., required to complete the whole, are united to the article, of which they form a part, by means of a stream of ordinary gas, forced through a form of blowpipe, called the "Autogenous," by a blast of atmospheric air. Hard solder only is employed for the joinings, thus rendering the article more substantial and more durable than it could otherwise be by the old method of soldering with a mixture of lead and tin. When the required form is obtained, the surface is polished perfectly smooth, by means of brushing or grinding with emery, sand, or rotten-stone, by steam power; and when finished by the hands of the chaser, it is ready for the reception of the metal to be deposited. Then follows the electro-plating.

In the workshops of the artizan, it is exceedingly interesting to observe the galvanic troughs and the magnets generating, collecting, and sending forth the electric fluid, which, traversing he slender wires of the deposit room, becomes, in the hands of the workman, a means of accomplishing his objects, as completely and perfectly as any tool or implement which he employs, causing at will a deposit of the gold and silver in the solutions to take place upon the articles requiring to be coated. The exhibitors have employed in the manufacture of a large number of the articles which they have produced (nearly the whole of which were made expressly for the Exhibition) a gigantic magneto-electrical machine, set in motion by a steam-engine of five-horse power. This machine consists of a series of sixty-four permanent magnets, arranged in a circle in such a manner that an armature of wrought iron revolves with great rapidity at a short distance from their poles, the current of electricity produced from which is conveyed by means of wires to the different positions required. The solutions of gold and silver employed are produced by dissolving an oxide or salt of the metal in cyanide of potassium. For depositing copper, a different solution is required. The articles to be coated are suspended from rods into the solution, and attached by the operator to a wire in connection with the positive pole of the electrical apparatus, the negative pole being attached to a plate of silver, gold, or other metal required to be deposited, which is likewise immersed in the solution; opposite to the article to be coated, the current is then applied, the metal held in solution is decomposed and deposited on the surface to be coated. A certain quantity of metal being dissolved from the plate, serves to maintain the strength of the solution. A period varying from five to ten hours is required for a good coating of silver; gold, in consequence of a less proportion being required, is deposited with greater speed. Where the object should be only partially gilt or coated, the portions not requiring the deposit are covered with a varnish, which effectually prevents the adhesion of the metal. When the articles have received their coating of the pure metal, the surface is finished either by burnishing with an instrument formed of steel or bloodstone, or polished with buffs made of leather, and finished by the hand.

The great advantages which the finished articles produced by this process possess, are, that the union of the deposited surface with the base is so complete as to form, in fact, but one body. This is proved by the great friction which the surface undergoes in the polishing: and it is also said to be capable of bearing exposure to a red heat without injury.

The objection to electro-plated goods, on the ground that the surface is liable to peel off, may therefore be said to be untenable, especially as the metal deposited on the more prominent parts of the article, and which are more exposed to wear, is thicker than on other portions which are less exposed: this is said to establish for the electro-plated objects a superiority over those plated by the ordinary mode.

The articles exhibited show that plain ornamental surfaces, and every description of style, however simple or elaborate, can be gilt or silvered with equal facility and success.

By the application of electricity, articles of *solid* metal may be produced with the same ease as those having merely a deposit of precious or other metal upon the surface. In this case, the metal is deposited in the interior of a mould, the surface of which has previously been rendered conducting. The operation is gradual in its character, and proceeds from a single point first made, until the whole interior surface is coated, and the accumulation of particles increase, until the desired thickness of deposit is obtained. The mould being removed, an article created entirely by the agency of electricity appears; the process being so perfect in its operation, that the slightest detail upon any original is reproduced in the copy.

It may be interesting to notice here, that the first successful process of coating metals from a solution of gold was discovered by the exhibitors in 1836, and patented by them, both in England and France. By this process, the gold is held in solution by bicarbonate of potash, which is used at a boiling heat, in which state it dissolves a portion of the copper articles to be gilt, and gives up the same proportion of gold, which takes the place of the copper, and covers the article. When the article is once covered with gold, the action of course ceases. Since the introduction, however, of the present more perfect method of electro-gilding and plating, this process has been discontinued. The *Société d'Encouragment des Arts et Métiers* awarded their gold medal for this invention at an early period of the patent.

No application of science to the department of manufactures has achieved a more complete triumph, and has been more generally adopted, than that of electro-metallurgy. In little more than twelve years from the period in which it was announced to the public as a philosophic and scientific amusement in the copying of coins, medals, or woodcuts, it has assumed a position the most important in the industrial world. • Other discoveries have had their periods of infancy, childhood, and middle age—they have crept slowly on to their prime—but the art of the electrotype appears to have sprung up at once into vigorous life and usefulness. Its discovery is due to Thomas Spencer, of Liverpool; although Jacobi, of St. Petersburg, a Russian professor, also lays claim to it. Upon it has been founded all the various improvements which have finally resulted in the present advanced state of the art. As such it gives employment to many thousands of workmen; it has superseded the older modes of plating, and it has, to a great extent, relieved gilders from the horrid disease and suffering consequent upon the old methods of gilding by amalgam, and resulting from the injurious effects of the mercurial vapour, while it has greatly increased the facility with which original, or copies from celebrated works of art, may be produced. It has no limits to the delicacy of its working or the magnitude of the works produced; it will preserve or copy the down on an insect's wing, or produce a life-size statue, as in that of Geoffrey de Mandeville, shown in the Exhibition, and now forming a principal ornament in the House of Lords. It has been truly said that the dome of St. Paul's might be gilt, and a man-of-war coppered by the electric agency. There are no limits to its capabilities, save that of the size of the vessel to hold the solution, and the power of the battery or magnetic-machine to generate and supply the electricity.

In its simplest form, electro-metallurgy may be described as a process in which a substance held in solution is deposited in a metallic form upon some metal to be coated or form to be copied. In the last, the cast or mould has been rendered conducting, by being covered with a metallic substance, or some material for which the metal held in solution has an affinity. Black-lead is the mineral most commonly used. The electricity employed was generated in the early period of the art by means of a galvanic battery in various forms. The loss of zinc and other metals was, however, great, and the battery was finally superseded (though at times still used) by the electro-magnetic machine, described in the preceding notice. This is a comparatively cheap process, requiring little more cost save the repairs of the machine and that of the engine which sets it in motion. Of thirty patents taken out for improvements in electro-metallurgy, thirteen have been originated in Birmingham, and these have had reference to the most important steps of progress in the art. It was at one time held that composite metals could not be deposited: brass has, however, been successfully thrown down, but the cost far exceeds any advantage gained by the deposit. Gutta percha, sealing and other waxes, stearine, plaster of Paris, &c., have been employed in the composition of moulds for internal deposits, but a recent discovery has been made of an elastic mould which may be left in the deposit trough without injury, and produce the most exquisite details and the most complicated under-cuttings. The mould may be removed without injury, and used repeatedly. It had previously been customary to place copper upon a prepared mould, thereafter to destroy the plaster, and deposit a precious metal, gold or silver, therein; then to remove the copper coating or matrix by disintegration from its more precious internal lining, when the object desired was exposed. The beneficial effects of electro-metallurgy have not been confined to the art of working in metals only, its influence has been extended to calico-printing, in the manufacturing of rollers for embossing and printing surfaces; copper and steel plates have been copied by its agency: woodcuts have also had their fac-similes produced thereby; while a new mode of illustration, viz., glyphography, owes its existence tto it. This enables the artist to produce, by a process in its early stage similar to etching, a metal surface with lines in relief, which may be printed from by the printing-press; and when blocked up into form in connection with ordinary type, it is equally efficient with wood-engraving, while it is less liable to injury. All these important results owe their existence to the accidental recognition, in the first instance, that the metal adhering to the copper-plate of a galvanic-battery deposited thereby was a copy, even to its most minute markings, of the plate to which it adhered. The experiments of Spencer, and the improvements of others, have laid the superstructure of an art whose future, judging from the progress made in the past, cannot be well imagined.

Though rather more suitable, in its present form, for the workers in iron than those engaged in the manipulation of the more precious metals, it may not be out of place to direct attention to the steam hammer of Nasmyth, of which a modification is introduced into Messrs. Elkington's works. It is one of the most beautiful appliances which the advanced state of science has placed in the hands of the manufacturer. By an arrangement produced by means of perpendicular screws, which in turn operate upon the valves, and regulate the admission of steam, the power of the blow may be so regulated that an egg may be tapped so gently that though touched it suffers no injury, while the next blow may as readily be made to crush into form a huge mass of iron or other metal. The action of the hammer depends upon that of the ordinary steam-engine, viz., a piston working in a cylinder. Though as yet only generally adopted by those engaged in the iron trade, its introduction into every department of metal-working cannot fail to lighten the artizan of the most laborious portion of his toil, and by doing so, in a corresponding ratio, increase his power by the facilities which it affords for the production of works of magnitude in metal, and at a reduced cost.

The "autogenous blowpipe" is a useful and valuable auxiliary to the worker in metals, from the facility and ease with which the flame may be directed to any part of the work to be soldered. The nozzle of the blowpipe is formed by two tubes placed concentrically, the outer of which being connected by a flexible tube to the ordinary gas-pipe which supplies the works, and the centre pipe also by a flexible tube to a pair of bellows or a blowing-machine, the gas is ignited, and the stop-cock connected with the blow-pipe turned on: the flame is propelled with great force upon the parts of the article to be united; the solder being mixed with borax, speedily fuses under the influence of the heat, the force or fusing power of which is increased or diminished by regulating the supply of air or gas. Complete control is maintained over the action of the flame by means of the stop-cocks. It is usual, in order to economise the heat, to place the article to be soldered on a raised pan filled with coke.—W. C. A.]

"Elkington, Mason, & Co., Newhall Street, Birmingham (1, p. 671). Messrs. Elkington and Mason are the first who introduced into England the application of the electro process to gilding and silvering. Their collection includes objects most varied in their forms and dimensions, intended for table service and for purposes of ornament, executed for the most part in copper, or in a compound metal alloyed with nickel, called German silver, and coated with silver by their electro process. The designs are generally produced in copper by the electrotype process, and afterwards wholly or partially gilt or silvered by means of electricity combined with the alkaline salts of gold and silver.

"Several vases, such as copies of the cups from Herculaneum and Pompeii, and various articles of ornament, are made entirely of pure silver deposited by the action of electricity. They are usually lined with wrought metal either to give them regularity of form in the inside or to render them fit for use.

"Messrs. Elkington's (Cl. 23, 1, p. 672) application of electrotyping to the reproduction of art and ornament has been successful as showing its perfect adaptability to this purpose. The hours' clock-case, designed and modelled by Mr. John Bell (Class 22, 641, p. 661), is a good example; it is an artist-like work of much fancy, and is a great improvement upon the worn-out commonplaces which the constant demand for such works abroad has occasioned; it deserves notice as a work of art, but is wanting in the symmetrical and architectural arrangement necessary to bring it properly into the province of the ornamentist."—*Juries' Report*, Cl. 30, p. 739.

38 Dixon, James & Sons, *Sheffield*—Manufacturers.

Silver candelabrum and epergne with crystal glass, illustrative of the four seasons, weighing 750 ounces, with massive plateau encircled by rocks, sea-gulls, and shells, together forming a base of 33 inches in diameter.—Pl. 415.

The old mode of manufacturing the plated copper out of which Sheffield plate is made, and for which the town has been so long celebrated, is by the fire process, and as follows:—

An ingot of copper is cast, say 8 inches long by 2½ inches broad and 1¼ inch thick; each side is planed and made perfectly clean; the plates of silver of proper size and strength are then bound on each side by wires, and borax is applied round the edges of the silver. The ingot with the silver plates is then placed in a furnace and heated to a red heat, when the silver being the smaller body, becomes partially melted, and adheres to the copper so completely, that when rolled out it stretches to the extent of the copper, making one smooth sheet. From these sheets articles are cut out and stamped or raised by hand with hammers, swages, &c. into tea, coffee, and dinner services, coffee-trays, &c.

The ornamental parts are all stamped separately in steel dies out of thin silver, and are then filled with solder to make them solid; they are soldered on as mountings to the articles before mentioned.—*P*. 679.

Britannia-metal electro-plated tea service.

A great variety of tasteful and elegant designs are made in this metal for coffee and tea services, and many other articles of domestic use.—Plate 399.

Britannia metal is composed principally of block tin, hardened by regulus of antimony, a small quantity of copper and brass is also introduced which renders the metal of a close grain and capable of taking a high polish. It can be easily cast, rolled, or stamped.

When the several parts of an article have been formed, they are fitted and soldered together, in the process of which the blow-pipe is used for the purpose of directing a stream of flame from a gas-burner to the seam or part wanted to be joined, when a small shred of solder is melted and which causes the parts to adhere by melting them together.

[Articles of a complicated form, such as ornamental candlesticks, tea-pot handles, feet, &c., are cast in brass moulds; the bodies on which these are fixed are produced by what is called spinning—a process by which fine thin discs of rolled metal are made to take the convex or globular form of the object desired: this is effected by the disc being placed against a suitable wooden block or chuck, which revolves in a lathe, and by means of the pressure of a steel tool or burnisher, the thin plate of metal is pressed against, and finally takes the form required. When in two or more parts they are soldered together by tin solder, which is melted by the heat of a blowpipe, and completes the adhesion of the two parts: the "mounts" are attached in the same way. Among the late improvements in electro-metallurgy, has been the successful application of this mode of silvering to the softer and less valuable metals; which has given an impulse to the production of articles elegant in form, and cheaper in proportion as the value of the foundation on which the deposit is made decreases.

The use of the blowpipe, in the manufacture of Britannia goods, is of the utmost importance in point of speed and cleanliness: the joints being cleansed, a strip of solder is held in one hand on the part in which it is intended to form a junction; the blowpipe is held in the mouth, and the flame of gas, candle, or oil-lamp, made to play upon the solder, which speedily fuses and unites the two portions to be joined. It is customary, in order to aid the fusion, to touch the seam with an admixture of resin and oil mixed together, to the consistency of cream. Considerable practice is required before those using the blowpipe acquire the power of breathing through the nose.

It may not be out of place to state that the manufacture of Britannia metal goods, extensively, was first begun at Sheffield in 1770, by two persons of the names of Jessop and Hancock; and since that period, the trade has been cultivated with success and profit.—W. C. A.]

"Dixon and Sons, Sheffield (38, p. 679). These manufacturers have exhibited a collection of coffee and tea services made of Britannia metal, an imperfect imitation of silver, as are all the compounds used for that purpose; but the forms are as varied as they are well chosen, and might be very advantageously imitated for the same articles in silver; the workmanship is very good, and the Jury award the Prize Medal in consequence."—*Juries' Reports*, Cl. 23, p. 516.

102 Lambert & Rawlings, 10, 11, & 12, *Coventry Street*—Designers and Manufacturers.

Large parcel-gilt silver wine-flagon twenty-two inches high, to hold thirteen quarts, elaborately chased in the mediæval style, with a long neck and stopper in the Oriental style; the body and neck ornamented with Gothic vine-leaves, with gilt veins and gilt and burnished bunches of grapes.

This flagon was manufactured entirely from sheet or flatted silver. The boss or body was formed from a circular piece of silver, 22 inches in diameter, and about 1/16 of an inch in thickness; it was raised or beaten by the hand with steel hammers on steel anvils. The neck was manufactured from sheet silver in a cylindrical form; the mouth-piece was raised from the same kind of silver as the boss or body, and the chain was composed of drawn silver wire. The flagon was made and ornamented entirely by hand, except the bottom or fillet on the neck, which was of cast silver. One workman was employed twelve weeks in its manufacture, and the parcel gilding and finishing occupied two weeks.

The silver, of which the body was composed, was of greater purity than that commonly used, containing 7 dwts. more pure silver to the lb. than that ordinarily employed, which increased the brightness and durability of the work. It was remarkable for elegance and simplicity of form, purity of design, and for the delicacy and subordination of the ornamental portions.

A companion flagon to the above, twenty-two inches high, to hold eleven quarts, melon-shaped and flattened, with long neck. The divisions of the side and neck ornamented with Gothic oak and acorns in bas-relief; the silver is of a dead brightness, and of greater purity than the silver commonly employed; it is said to be extremely durable.

This flagon has been purchased by the Fine Arts Commission, for the Museum of the School of Design at Marlborough House.

Antique silver-gilt inkstand, in the Dresden style, with figures of Britannia, Commerce, and Plenty.

Two centre salt-cellars; designs, Dolphin and boy, and Boy supporting shell. The group of articles, with others exhibited by the same firm, competed for and obtained prizes offered, in 1851, by the Goldsmiths' Company.—P. 690.—Plate 347.

[Parcel gilding is a style of decoration employed to add to the value and appearance of objects executed in the precious metals. It consists in attaching to portions of the surface, and on such parts as the taste of the artist may point out, a coating of gold: thus, in the present instance, the grapes are gilt, and the veins of the leaves rendered more prominent by the same means. The gold is attached by the old process with mercury, that being considered the most durable. The application of the electro process has much facilitated the readiness with which the gold may be attached to portions of a surface; parts which it is not desirable to gild being "stopped out" by a varnish previous to the immersion of the object to be gilt in the solution of gold.—W. C. A.]

"The Jury award a Prize Medal to Lambert and Rawlings, Coventry Street, London (102, p. 690), for their carefully executed, elegant, and novel silversmith's work, in particular, for a round flattened vase, with a long neck and lid, in the Oriental style; the body and the neck ornamented with leaves with gilt veins, and gilt and burnished bunches of grapes: also for a centre vase, melon shaped and flattened, having a long neck, the division of the side and the neck ornamented with thistles in bas relief: the silver is of a beautiful dead brightness, which would appear to be very durable."—*Juries' Reports*, Cl. 23, p. 516.

117 Morel, J. V., & Co., 7 *New Burlington Street, Regent Street*—Designers and Manufacturers.

Equestrian statue of Queen Elizabeth, after the bas-relief on the state seal of England, used during her reign; height 4 feet 2 inches, length 3 feet. Embossed with the hammer, and forming a specimen of the real work of the silversmith (that is, beaten out with the hammer only). It is said to be the largest piece of *repoussé* work existing, both as regards size and workmanship. This manner of working was much practised in the sixteenth century, was revived in 1836, and has since been successfully applied.—P. 693.—Plate 343.

[The exhibitor directs attention to the important distinction between cast and hammered work, commonly called *repoussé*, of which Cellini says,—"Contiene in se piu virtuosa pratica." Castings once made may be repeated in mass or in detail; whereas, every separate article in *repoussé* requires the same labour and dexterity which, though a fault in a mere manufacture, adds value to a work of art. The earliest method of using the precious metals seems to have been in hammered plates, probably applied to a frame of timber, and in the Minerva of Phidias, forming a gold and ivory statue of nearly 40 feet high. Cellini describes the method of working large statues, "Laveri di grosseria," in his day.—H. T. H.]

A large bouquet, composed of diamonds and rubies of fine water, representing a rose, a tulip, and a volubilis. It can be readily separated by an ingenious contrivance to form a stomacher, head-dress, brooches, and bracelet. The bouquet contains about 700 carats of diamonds and 200 carats of rubies of even colour, and set in bezels of gold.—Plate 344.

[The oriental ruby most esteemed by the jeweller is classed as a red sapphire by the lapidary, whose test is not colour but specific gravity and hardness. The ruby spindle, according to the latter test, is the genuine ruby, and is less hard and heavy than the oriental.—H. T. H.]

Class XXIV.

GLASS.

15 Davis, Greathead, & Green, *Stourbridge*—Manufacturers.

Group of Etruscan vases in opaque glass, ornamented with figures and borders after the antique, and the compositions of John Flaxman, R.A., from the Iliad of Homer, the Theogony and Days of Hesiod, and the Tragedies of Æschylus.—P. 609.—Plate 318.

[The original vases of Etruria were not made of glass, but clay—their use, that of holding the ashes of the dead, is thus described:—"After the body had been burned, the ashes were gathered into an urn or vase, which was called a cinerary urn, and was deposited in the tomb, either on the floor or in a niche in the wall; and thus in a family vault might be seen a row of urns containing the ashes of the family for ages back." The more rude specimens are supposed to be of Etruscan make; those more delicate in form, and with the figures retaining the colour of the clay, are generally understood by the learned to be of Greek origin.

These vases, which form the subject of illustration, resemble more nearly the painted varieties contemporaneous with the age of Pericles—in the introduction of colour, &c. They are produced from opaque glass, obscured by removing the outer enamel or glaze by friction with sand. The figures are painted in enamel colours, which, after exposure to the muffle, become fused, incorporate with the glass, and are indestructible.

In the note to 14, Class XXIV., page 699, a brief history of the introduction of the manufacture of glass at Stourbridge was given; and a continuation is here given, enumerating the several improvements introduced, and as far as possible, the date of their introduction, by which it will be seen how much has been done for the glass trade in the locality which, if not the first in which it was practised, was certainly the second.

So far back as 1650, an engraver of the name of Schinner settled at Stourbridge, and acquired some degree of celebrity. The first glass chandelier was made by Bradley, Ensall, & Co., about 1760, and was kept in a house near the Glass Works, in Brettell Lane, as a curiosity, for many years afterwards. In 1802 a workman of the name of Charles Chubsie made the first open and shut moulds. He was then in the employ of the old establishment of Bradley, Ensall, & Holt.

Steam-engines were first used for cutting glass by Benson, of Dudley, and Dovey, of Stourbridge. Until the introduction of power the work was generally done by large wheels turned by manual labour, and not unfrequently females were employed at this task. John Dovey, of Brettell Lane, was the first who used wrought-iron mills for cutting glass; he has also the merit of having introduced into use the double mitre and the double hollow stones.

In the year 1804 three new shapes of drinking glasses were introduced by Messrs. Loxdale & Jackson, at a glass-house near Bilston: it was with some difficulty the improvements were carried out, as the workmen felt but little interest in making a change for which they could not comprehend the necessity, and which to themselves personally was attended with difficulty. James Chubsie was the first who opened out the tops of wine glasses. Previous to this they were always wrinkled.

The old system of stereotyped forms having been invaded in the year 1824, a complete influx of new designs for wine glasses and table wares followed. In that year Messrs. Wheeley, of Brettell Lane, near Stourbridge, made several of the most successful attempts which had been tried up to that period towards securing purity and crystalline appearance in flint glass. Though their method was frequently successful, yet no dependence could be placed on preserving it uniformly so. A more successful experiment was, however, made by the Messrs. Richardson, of Wordsley; to whom also report attributes the first attempt in making *pressed* glass objects. This process of glass-working was, it is understood, an American invention, and was introduced by them in 1834; they also revived in 1845 the art of enamelling on glass: specimens had been executed in the district seventy years previously, which were inartistic in the extreme.

A considerable proportion of the working population of Stourbridge and the adjacent villages and hamlets are engaged in the manufacture of glass. A recent enumeration shows 316 blowers, 236 cutters, and 16 enamellers.

A School of Design has, within the present year, been established at Stourbridge, with the express intention of assisting the glass-workers, and it doubtless will tend to improve the taste of the designers of that locality. No mechanics appear to understand and manipulate their material with more ability than those engaged in the manufacture of glass. If so much has been accomplished without a knowledge of drawing, how much more may be accomplished with it! The glass trade of England, as a whole, demonstrates natural capability, wanting education and training only to secure the most successful results. The excellence of the Bohemian enamelling and engraving has its origin in a cultivated taste and a keen perception of the beauty of objects, animate and inanimate, and which, doubtless, the English workman can and will acquire when fit opportunities are offered.—W. C. A.]

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19 **Bacchus, George, & Sons**, *Dartmouth Street Works, Birmingham*—Manufacturers.

Jug and goblets in blue and flint glass, enamelled, cut, engraved, and gilt. Plate 401.

Group of wine glasses, champagne glasses, and goblets in Venetian glass, cut and engraved.—Pp. 699, 700.—Plate 306.

[Venice was long celebrated for the quality of its glass, also for the unique forms and various styles of ornamentation introduced into the several objects produced. Previous to the seventeenth century, the chief supply of glass used in England was imported from that country. The proprietors of, and manipulators in, the various glasshouses were the nobility of the city. An impression existed that all engaged in the manufacture were ennobled thereby; but Blancourt, in his "Art of Glass," shows "they were gentlemen by birth previously, and their privileges running that they might use their art without derogating from their nobility." In addition to the perfection of lightness and elegance of form in the vessels and objects produced by the Venetian glass-workers, several varieties of ornamentation were introduced and cultivated by them, viz., the "Filigree," produced by the arrangement of opaque "canes," which, after being placed and coated with flint, while the cylinder of glass was heated, ductile or plastic, was held by two workmen, one of which twisted the glass by turning his rod, and by doing so produce the appearance of a spiral thread. This was used, as in the accompanying illustration, for drinking-glass stems, and not unfrequently the entire glass or goblet was formed from this variety. "Millefiore," as in the letter-weights now sold, exhibits a series of coloured circles grouped under pure flint-glass. This is produced by fracturing coloured canes of glass at right angles to their axis, and having arranged the same in the order desired in a mould, a collection of flint-glass having been made, is applied to the back of the group alluded to, when complete adhesion is produced; another gathering of flint is applied all over the front, and the globularity is produced by the manipulation of the workman with his tools. "Mosaic" glass is another variety of the same kind as the preceding. In this, figures are occasionally introduced, the canes in this instance not unfrequently representing a section of the figures of animals, &c. "Vitro detrino" much resembles the "Filigree," and differing from it only in the threads crossing each other, and producing a series of diamond-shaped spaces. This was produced by manipulating two cups of glass, in which the threads were placed in opposite directions. These were fused together, and produced the style of ornamentation named. The "Frosted" variety was produced by immersing the heated bulb of glass in water: the change of temperature, though it does not fracture the bulb throughout, has the effect of covering the surface with a minute series of "crackles," the preservation of which in the finished work constitutes the perfection of this variety. Tradition assigned to Venetian glass a property not possessed by that of any other country, viz., that of fracturing, should poison be introduced into the vessel formed thereof. Byron alludes to this in "The Two Foscari" as follows:—

> Doge. 'Tis said that our Venetian crystal has
> Such pure antipathy to poisons as
> To burst, if aught of venom touches it:
> You bore this goblet and it is not broken.
> Loredano. Well, Sir!
> Doge. Then it is false or you are true.
> For my own part, I credit neither; 'tis
> An idle legend.

The manufacture of glass in Venice has now much declined, and the celebrity of the material, like the glory of the city itself, has departed before the more general cultivation of science in connection with industrial pursuits by other countries and free states.—W. C. A.]

20 **Osler, F. & C.** 44 *Oxford Street*, and *Broad Street, Birmingham*—Manufacturers.

Candelabrum in cut crystal glass, carrying fifteen lights, height eight feet six inches.

This candelabrum is one of a pair manufactured for, and now in the possession of, Her Majesty.—P. 700.—Plate 416.

Crystal glass candelabrum, supported on three griffins, in frosted glass.

Large table candelabrum, in crystal glass, with cut-glass shaft.

Large lustres, mounted with crystal prisms.

[The objects enumerated by these exhibitors illustrate the principle upon which several of the very important objects executed by them were produced, and show that glass, though a brittle material, is yet capable of being manipulated, and has greater capabilities of application than has hitherto been supposed. It can be structurally rendered substantial, while in the mass its brilliance is not impaired. This result has been arrived at by constructing an internal support, round which the several pieces are arranged; by means of which the skeleton-work, being of metal silvered, is entirely concealed, and externally the whole presents one mass of crystal. This mode of construction was the subject of a patent several years ago, and the result has been the production of two candelabra, each 18 feet in height, for the Pacha of Egypt; one upwards of 20 feet in height, which appeared in the Birmingham Exhibition of 1849, and became the property of the Nepaulese Prince; and two, each 10 feet in height, which now light the tomb of the prophet at Medina. The crystal fountain which occupied the centre of the Exhibition Building is another illustration of their mode of construction: upwards of four tons of crystal glass were used therein, the whole of which was ground and polished by the process described in the note to 21. The principal dish was eight feet in diameter, and weighed, previous to cutting, nearly one ton; the shells introduced around the base, before cutting, weighed fifty pounds each. The risk attendant upon the annealing, and the attention to the proper temperature of the "kiln," may be imagined, because, if too hot the several forms would have become misshapen; if too cool, fracture in cutting must have followed. Every portion of the fountain had its support of metal, which, when clothed with its crystal coating, became lost in the brilliancy of the mass.

The manufacture of icicle drops was first systematically introduced by this house. Originally they were only produced on the Continent, and were then "rude, shapeless, elongated lumps of glass, without prismatic effect." Their introduction into this country was in consequence of our Envoy at the court of Saxony, on his return to England, having brought with him a pair of lustres, furnished with rude pendants, some of which were broken, and in attempting to supply these, the production of the ornamental and refractive icicle had its origin. Originally the drops were cut from canes of glass—a work of labour; thereafter moulding was introduced. The suspension mounting, in the form of a ferrule or ball, with brass eye, attracted the moisture and dimmed their brilliancy; the perforation of the eye, also, was attended with much risk. Eventually the end of the prism was softened by the action of the blowpipe, and the small metallic loop introduced. The icicle drop, after the lapse of several years, was gradually superseded by the prism with parallel sides, and other forms now in use.—W. C. A.]

> "In the case of Messrs. Osler, of Birmingham, the Jury thought they were justified in recommending them for a Council Medal, in consequence of the general merit of the works exhibited by them, and a novel application of the art in the crystal fountain placed in the centre of the Nave, which is good as a specimen of manufacture, more particularly when the magnitude of the pieces of which it is composed and difficulty of execution are taken into account; and though possibly the architectural design may be capable of improvement, yet there is no doubt of its being a work of great beauty, and of its adding very materially to the brilliancy and general effect, in the conspicuous part of the building in which it is placed."—*Juries' Reports*, CL. 24, p. 532.

21 HARRIS, RICE, & SON, *Islington Glass Works, Birmingham*—Manufacturers.

Large goblet and cover of ground crystal covered with ruby and white, richly cut in three shields; on one are the royal arms of England, and on the other two the monograms of Her Majesty and Prince Albert.

[Rubies, or reds in glass, are produced by the suboxide of copper and the purple precipitate of cassius. The colour is so intense that it is in general applied upon a flint body, or, in the technical language of the trade, "flashed." The process may be thus described. A gathering of flint glass being made, a cup of ruby, its internal diameter fitting the convexity of the flint, is affixed thereto, and the two bodies, by exposure to the heat of the furnace, become fused together, and in all the after manipulation the ruby coating adheres firmly to its flint foundation, expanding and contracting into the various forms required. In addition to the showing the colour better, where engraving or cutting is introduced on a coated object, the flint body, by contrast, improves its appearance.

In glass-cutting generally, and in the objects here shown, more particularly in the large goblet in the centre, the deep scollops or cuttings on its foot were produced by thin revolving iron wheels, upon which sand and water are constantly dropping, and thus wearing away the glass by abrasion; the other cuttings by the same process, and by wheels of the same material, but of different forms. The rough sand-markings are removed with stones, also revolving by power; a polish is given with ground pumice or rottenstone on wood wheels, and the final brilliancy with putty of tin; these substances being applied to the outside of a wooden "bob," or wheel, revolving with considerable speed, against which the article to be polished is held or pressed.]

Jug of Venetian glass, elaborately cut and engraved.

[The operation of engraving on glass may be briefly described as the cutting away by abrasion or grinding certain portions of the surface in intaglio, which is effected by means of small copper discs revolving with great speed in a lapidary's lathe, the discs from time to time being touched with emery to improve their cutting powers: the more minute the details of the design to be cut, the smaller the diameter of the disc; in some cases it can with difficulty be seen. The workman is in general seated, and gives motion to the lathe with his foot, while he guides with his hands the vase or goblet to be cut in such a manner as to describe the different curves, &c.]

A vase of dark opaque blue glass, cut, scalloped, and ornamented with oak-leaves and acorns in silver.—P. 700. —Plate 300.

[In gilding or silvering glass by the muffle process, oxides of the metal selected are used: it is ground up with a flux, and fat or oil is applied with a brush, subjected to the heat of a muffle sufficient to melt the flux; it is allowed to cool, and presents then a dead appearance. The burnisher, generally a female, dips the point of her finger, covered with a piece of rag, into a little whiting, and rubs the surface of the metal, and thereafter by friction with a bloodstone, the brilliancy is imparted.

The extent to which the glass trade has spread in Birmingham is remarkable, considering the limited period it has been established. Previous to 1780 there were no glass-makers in the town. In that year, a Mr. Hawker established a small glass-work in a court or yard in Edgebaston Street. The court still bears the name of Glasshouse Yard. This was principally employed in the making of phials and bottles. The success which followed the speculation induced the building of a glass-house upon a more extended scale in the vicinity of the town: others followed; and some idea of the extent of the operations carried on may be gathered from the simple statement that one glass manufacturer in Birmingham paid in duty, previous to its abolition, one-fifth of that paid by all the glass-makers in the United Kingdom. The number of glass-blowers employed in the manufacture of table and fancy glass within the town and its environs (not in-vitrified, and so coloured as to imitate with very considerable fidelity the natural stones, which being in high relief, together with the additional effect of the chased and burnished gold which forms the mounting, presents altogether a most brilliant and costly *tout-ensemble*. The ground upon which the designs are executed is a dark royal blue, and the form of the vase in the background is a fac-simile of one of silver-gilt found in a vessel forming part of the Spanish armada, and now in the possession of Her Majesty.

The Greek vase, forming the principal object of the group, is copied from one in the possession of Sir Woodbine Parish. The borders, which are an adaptation of the Greek style, are executed on raised and burnished gold, on a ground of cobalt blue. The wreaths of flowers are in natural colours. The height is about 30 inches. The vase at the back is Etruscan, and decorated in imitation of one of the originals in the British Museum. The ground is black and the design fawn.—Plate 402.

Group in parian, "The Return from the Vintage," consisting of seven figures.—Pp. 711-714.—Plate 403.

[The group described above, and illustrated in the accompanying plate, in common with other articles of the same material, is statuary porcelain, and its manufacture may be thus described:—The clay, used in a semi-liquid state, about the consistency of cream, and called "slip," is poured into the moulds forming the various parts of the subject: the number of moulds depends upon the nature of the subject, but in the group described above upwards of fifty were employed, each mould being in several divisions. The shrinking that occurs before these casts can be taken out of the mould, which is caused by the absorbent nature of the plaster of which the mould is composed, is equal to a reduction of an inch and a half in the height. These casts are then put together by the "figure-maker;" the seams (consequent upon the marks caused by the subdivision of the moulds) are then carefully removed, and the whole worked upon to restore the cast to the same degree of finish as the original model. The work is then thoroughly dried, to be in a fit state for firing, as, if put in the oven while damp, the sudden contraction consequent upon the great degree of heat instantaneously applied would be very liable to cause it to crack: in this process it again suffers a further loss of an inch and a half by evaporation, and it is now but 1 foot 9 inches. Again, in the "firing" of the bisque oven, its most severe ordeal, it is diminished 3 inches, so that a model 2 feet high will then be but 18 inches high, being 6 inches or one-fourth less than the original. Now, as the contraction should equally affect every portion of the details of the work, in order to realize a faithful copy, and as added to this contingency are the risks in the oven being over-fired, by which it would be melted in a mass, and of being short-fired, by which its surface would be imperfect, it is readily evident that a series of difficulties present themselves which require considerable practical experience successfully to meet.

The moulds are made of plaster of Paris, which, when properly prepared, has the property of absorbing water so effectually that the moisture is extracted from the clay, and the ware is enabled to leave the mould, or deliver with care and rapidity.

Prior to use, the plaster (gypsum) is put into long troughs, having a fire running underneath them, by which means the water is drawn off, and it remains in a state of soft, fine powder; and if its own proportion of water be again added to it, it will immediately set into a firm, compact body, which is the case when it is mixed to form the mould.

The following are the degrees of temperature in which the different branches work:—

Plate-makers' hot-house . .	108° Fahr.
Dish-makers' hot-house . .	106° ,,
Printers' shop	90° ,,
Throwers' hot-house . . .	98° ,,

The branches against which the temperature of the hot-house is placed require that heat for drying their work and getting it off the moulds. The outer shops in which they work may be from 5° to 10° less.—T. B.]

32 **Daniell, A. B. & R. P.**, 18 *Wigmore Street* and 129 *New Bond Street*—Designers and Proprietors. Manufactured at *Coalbrooke Dale.*

Porcelain plate, "bleu-de-roi" ground, ornamented with the imperial arms of Russia, emblazoned in compartments of ivory tint surrounded with rich gold tracery and ornamentation.—Plate 323.

The above is inserted as a specimen of the dessert service executed by order of the Queen, and presented by her to His Imperial Majesty the Emperor of all the Russias.

Icepail in porcelain supported by dolphins, the handles of the sides and cover represent dolphins in graceful attitudes. The body of the icepail is elaborately painted with groups of flowers and fruit.—Plate 345.

The engraving described above is inserted as an illustration of the "Rose Dubarry" dessert service, of which it formed a part. The service contains two of these icepails, and consists of about 140 pieces. It is now the property of the Right Hon. Lord Ashburton.

The production of this celebrated colour, for the first time in this country (so famous at Sèvres during the reign of Louis XV.), upon English porcelain, is deemed a great achievement in British manufacture.—P. 724.

[In this service is shown a revival of the beautiful pink or rose colour found on the old pâte tendre of Sèvres, known as the "Rose Dubarry." Madame Dubarry having some vases executed at the Sèvres works, the rose colour was adopted, as being the lady's favourite, in compliment to her.

Plates, dishes, saucers, &c., termed "flat ware," are made from moulds which form the inside of the article, the exterior being given by "profiles," concaved in order to produce the convex external form; these profiles are made of fired clay and glazed. The clay out of which the plate, dish, and saucer is to be made is "batted" out to the necessary thickness and size, and laid upon the mould, which is placed upon a plaster block, having an iron axle and working on a pivot, the rotatory motion of which is effected either by machinery or by the workman's hand. The clay is pressed to the mould by the application of wet sponges, and the profile being pressed gives the desired contour. In this state the mould and its clay cover (*i. e.* the future plate), is carried to the hot-air chamber, which is fitted round with shelves, wherein it is placed, and remains until it is tolerably dry; it is then removed, and the profile again passed over it, which corrects the inaccuracies of form consequent upon shrinkage, arising from evaporation of the water contained in the clay.—T. B.]

[Bleu-de-roi is one of the celebrated coloured grounds for which the articles produced for royal use at the manufactory of Sèvres were admired. It is of the most intense yet brilliant blue colour, and appears to have received its designation, owing to the livery or clothing of the members of the royal household of France being of the same shade. Blues for porcelain are procured from cobalt, and are oxides of that metal: in its concentrated state the colour approaches nearly to a black; its intensity is therefore reduced by admixture with the oxides of zinc and tin. It volatilizes at a high temperature: works in hard porcelain which it is advisable should be white are not fired in the same kiln. In tender porcelain, it does not produce the same result, owing to its being fired at a lower temperature. Fluxes into which metals enter should be avoided where cobalt is used, their effect being to diminish the transparency and brilliancy of the colour.

Cobalt, in its mineral state, is usually found in combination with nickel. Its oxide is now principally manufactured in Birmingham, and extensively used by earthenware manufacturers for giving a blue colour to their wares. Previous to the discovery made by the late Mr. Benson, of an inexpensive method of separating cobalt from nickel, the oxide was manufactured from Norway and Saxon zaffres, by refiners in the Staffordshire potteries known as blue-makers. The oxide made in Birmingham, however, is much superior to others, producing the same intensity of colour from one-fourth the quantity; the tint is also much more beautiful. The principal earthenware manufacturers consequently use, at the present time, only the oxide prepared in that town.

"Ivory," or yellow, in porcelain, is produced from the oxides of antimony, tin, or lead, the proportions in which they are used increasing or diminishing the intensity of the shade. Attention is here also necessary in the selection of the fluxes.—W. C. A.]

[In enamelling, ground-laying is the first process in operating on all designs to which it is applied: it is extremely simple, requiring principally lightness and delicacy of hand. A coat of boiled oil, adapted to the purpose, being laid upon the ware with a pencil, and afterwards levelled, or, as is technically termed, bossed, until the surface is perfectly uniform; as the deposit of more oil in one part than another would cause a proportionate increase of colour to adhere, and consequently produce a variation of tint. This being done, the colour, which is in a state of fine powder, is dusted on the oiled ground with cotton wool; a sufficient quantity readily attaches itself, and the superfluity is cleared off by the same medium. If it be requisite to preserve a panel ornament, or any object while upon the ground, an additional process is necessary, called stencilling. The stencil (generally a mixture of rose-pink, sugar, and water) is laid on in the form desired with a pencil, so as entirely to protect the surface of the ware from the oil, and the process of grounding, as previously described, ensues. It is then dried in an oven, to harden the oil and colour, and immersed in water, which penetrates to the stencil, and, softening the sugar, is then easily washed off, carrying with it any portion of colour or oil that may be upon it, and leaving the ware perfectly clean. It is sometimes necessary, where great depth of colour is required, to repeat these colours several times. The ground-layers do generally, and should always, work with a bandage over the mouth, to avoid inhaling the colour dust, much of which is highly deleterious. Bossing is the term given to the process by which the level surfaces of various colours, so extensively introduced upon decorated porcelain, are effected. The boss is made of soft leather.

The process of gilding is as follows:—The gold (which is prepared with quicksilver and flux), when ready for use, appears a black dust; it is used with turpentine and oils similar to the enamelled colours, and, like them, worked with the ordinary camel's-hair pencil. It flows very freely, and is equally adapted for producing broad massive bands and grounds or the finest details of the most elaborate designs.

To obviate the difficulty and expense of drawing the pattern on every piece of a service, when it is at all intricate, a pounce is used, and the outline dusted through with charcoal, a method which also secures uniformity of size and shape. Women are precluded from working at this branch of the business, though, from its simplicity and lightness, it would appear so well adapted for them. Firing restores the gold to its proper tint, which first assumes the character of dead gold, its after brilliancy being the result of another process, termed burnishing.—T. B.]

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47 **Rose, John, & Co.**, *Coalbrook Dale Iron Bridge, Shropshire*, and *Newcastle Street, Strand*—Manufacturers.

Rose du Barry tripod épergne, with pierced basket, and representing the seasons; the cupids in parian.

Lotus vase, cream and sugar tureen.—Plate 309.

Porcelain épergne, turquoise and gold, supported by sea-horses, executed in parian. Candlestick, &c.—Plate 304.

Group of figures in parian, subject "The Pleiades adorning Night."—Plate 310.

Group of figures in Parian, "Puck and his companions."—P. 727.—Plate 303.

[It appears to be doubtful as to the precise period at which the manufacture of china, &c., was introduced into Shropshire: the manufactory at Coalport "was, however, commenced somewhere about the year 1772. In its earlier existence it was superintended and directed by a Mr. Turner, to whom report ascribes the origination of the art of transfer printing on a blue colour to the surface of china when in a biscuit state." The china of Coalport has long enjoyed a well-merited reputation for the excellence of its material and the workmanship.—W. C. A.]

["Rose Dubarry" forms one of the celebrated and rare colours at an early period produced at the Sèvres manufactory, near Paris, an establishment supported and encouraged at national cost by the French: and which is in fact a vast laboratory devoted to the cultivation of and experimenting in the potter's art. It had its origin at St. Cloud, somewhere about the year 1695, and was eventually transferred to Sèvres in 1756. Within its walls is one of the most perfect and complete collections of pottery and porcelain in existence, arranged according to periods and nations. Among its directors it has numbered the celebrated Brongniart; at present it is presided over by Ebelman. The works produced there partake rather of the character of articles of luxury and ornament, and have recently been justly celebrated for their exquisite form, delicate, chaste, and artistic style of ornamentation, rather than for their practical utility. It would, however, appear, judging from the common pottery in use in France, that the taste and knowledge gained there is confined almost exclusively within the walls of Sèvres. The products of the establishment will be remembered as forming a part of the collection brought together by the Marquis D'Aveze, in 1797, which eventually resulted in the institution of the National Expositions of France: he writes with enthusiasm of the "large and beautiful vases, the magnificent groups, and the exquisite pictures of Sèvres china, which enriched the saloons of St. Cloud," and which were to have formed features in the great industrial display put a stop to by the horrors of the Revolution. Previous to 1769 the manufacture was confined exclusively to the production of articles in "pate tendre." The discovery of kaolin, the true porcelain clay, by accident, near Limoges, determined the manufacture of hard porcelain at Sèvres. Enamel painting and gilding were the important objects aimed at and cultivated as the means of adorning the external surface. The most celebrated colours introduced as grounds were royal blue, turquoise blue, a delicate yellow, and the delicate pink, or "Rose Dubarry," alluded to.—W. C. A.]

CLASS XXVI.

FURNITURE, &c.

19 **WYNNE & LUMSDEN**, 30 *East Street, Manchester Square*—Manufacturers.

Carved oak chimney-piece for the drawing-room at Ruthin Castle, designed by Henry Clutton, Esq., architect.—P. 731.—Plate 324.

[Carved timber chimney-pieces were at one time very generally introduced: they form important features in many of the public buildings and chateaus on the Continent. The interiors of Nash and Hague abound in examples of this portion of the apartment on which the artist workman had lavished all his skill and art: instances are not uncommon in England. At Houghton, Stanstead, Petworth, Chatsworth, &c., will be found splendid examples of wood-carving as applied to chimney-pieces. The wood selected was not at all times oak, the character of the carving or ornament introduced determining the selection. Where, as in the illustration, the work was principally surface decoration in bas-relief, oak was well suited for the purpose from its durability; when a more complete relief was required, and more delicate work was introduced, wood of a closer grain was used, which cut more freely, such as that of the sycamore tree, walnut, &c. The tools employed are gouges and chisels of various forms.—W. C. A.]

177 **WERTHEIMER, SAMSON**, 35 *Greek Street, Soho Square*—Manufacturer.

Jewel casket in the cinque-cento style, wrought into shape, with pierced and richly engraved or-molu mountings, malachite and other stone settings introduced and finished inside with silk velvet. Claret jug with or-molu mountings. Work-box in the style of Louis XIV., chased, pierced, engraved, and gilt, in or-molu, mounted with ornaments of porphyry. Embossed, pierced, and engraved inkstand, in the Elizabethan style, malachite settings, and with two china bottles. Bell and match-box, richly engraved and gilt, with stone settings in the cinque-cento style.—P. 746.—Plate 314.

[The cinque-cento style of ornament is that which followed the "Renaissance" in France, and arose out of the kingly liberality of Francis I., who invited the best artists of Italy into France. Da Vinci, Rosso, Primattico, and Cellini were the great masters of that style of art.—W. C. A.]

187 **JENNENS & BETTRIDGE**, 6 *Halkin Street, West, Belgrave Square, London*, and 99 *Constitution Hill, Birmingham*—Designers and Manufacturers.

Papier-maché semi-cottage pianoforte. The case is in the Italian style, and has finely polished black ground, inlaid with mother-o'-pearl by the exhibitors' patented process.

The instrumental part of the pianoforte is by Mr. A. Dimoline, of Bristol; it has a compass of seven octaves, and is arranged on a new principle, which is "registered." A music-stool and Canterbury *en suite*.—Plate 404.

A group of papier-maché manufactures, consisting of a tray of extraordinary dimensions (15 feet in circumference), ornamented in gold and colours, the same in size and style of decoration as several made for his Highness the Pacha of Egypt, by the exhibitors.

"The Victoria Regia Cot," designed by J. Bell, Sculptor, ornamented in burnished and dead gold on a delicately tinted ground, with emblematical devices of flowers and ornaments. A work-table and a work-box tastefully ornamented by the patented process, *en suite.* An inkstand of new form with massive, richly-cut glass, ornamented with pearl, on black ground.

A prie-dieu chair ornamented with gold on a black ground.—Plate 405.

Among the numerous specimens of papier-maché contained in the collection of these exhibitors was the "Day Dreamer," an easy chair designed by H. FitzCook. The figures at top represent two winged thoughts, one with bird-like pinions and crowned with roses, joyous, and the other with leathern bat-like wings, unhappy dreams; behind is displayed the rising sun of Hope. The twisted supports of the back are ornamented with poppy, heartsease, convolvulus, and snow-drop, all emblematical of the subject. In front of the seat is a shell containing the head of a cherub, and on either side figures of a more earthly character represent pleasant and troubled dreams. On the sides of the chair "Puck" lies sleeping in labyrinths of foliage, holding in his hand a bunch of poppies. The style of the ornament is Italian.—Pp. 748, 749.

"Messrs. Jennens and Bettridge, of Birmingham and London (187, pp. 748 & 749), are the largest manufacturers of this material in England, they have been established about fifty years, and have introduced many improvements. About thirty years since, they obtained a patent for a new application of pearl to japan ware; and this firm have, from their enterprise and taste, greatly developed the trade by adapting this material to many new purposes. Tables, chairs, screens, work-boxes, inkstands, portfolios, even a piano, are among the endless variety of objects to which it is applied by them. They exhibit a very large collection of japanned ware, executed both in papier-maché and other materials: the most conspicuous among them is a cottage piano-forte, of which the entire case is made in papier-maché, japanned black, and inlaid with mother-of-pearl. The ornaments of this piano are in good taste and well executed, but scarcely suitable in style for the materials employed, which being necessarily in small pieces, would have probably told with better effect if arranged in the form of mosaic. A wine tray, and many others of the specimens where the principles of the design are perfectly flat, are excellent examples. In some of the work-boxes, too, the introduction of the jewelled work under glass is appropriately designed and well executed, and forms a pretty addition to the papier-maché. The style of work of some of the large objects, such as a reclining chair, cot, tables, &c., however well designed and ingeniously executed, did not appear suitable to the material. The Jury nevertheless, recognise the great merit due to this house, and feel pleasure in awarding the Prize Medal."—*Juries' Reports*, CL. 24, pp. 548, 549.

[Papier-maché, composed of sheets of paper, was invented, about the year 1760, by a Mr. Clay, then in the employ of the celebrated Baskerville. The price obtained for objects manufactured of such material was immense. In the first instance it was only applied to tea-trays, but its lightness, in connection with its strength, gradually suggested its application to other objects. It has become a staple trade in the town of Birmingham; and the demand for articles made from it led, in the year 1832, a Mr. Brindley to patent a process for producing articles from the pulp by pressure in metal dies: this variety is inferior in strength, being homogeneous and produced by one operation. The art has been productive of various styles of ornamentation being applied, from simple imitation of the Chinese to that of the lac work of Japan, thence again to pearl-inlaying, the insertion of deposit medallions, gem-inlaying, and pearl-inlaying under glass, as means of securing additional brilliancy and effect: not unfrequently copies of celebrated pictures have been applied to the purpose of its decoration. Some few years back transferring was introduced in the manner of printing on pottery ware when in a state of biscuit. The paper used was a thin Indian variety; the ink a varnish, which was in turn transferred from the surface of the paper on to the tray, and while wet, leaf-gold or bronze was applied; in other instances the ornament was printed black and filled up with colour with the brush.

The establishment in which the objects were produced, forming the subject of the illustrations which accompany the text, has been established for upwards of fifty years, and has been distinguished for the original and highly artistic character of the articles emanating therefrom, and the more general application of papier-maché to large articles of furniture, panels for steam-boat saloons, boudoirs, &c. 250 hands are constantly employed, a considerable proportion being artists. To this firm may be attributed the application of pearl inlaying as applied to papier-maché, for which a patent was obtained 30 years ago; and also the introduction of imitation jewels under glass, and distinguished by the name of gem-inlaying. This also forms the subject of a patent recently taken out by the exhibitors. The process may thus be described: the gems are cemented to the underside of the glass, which is diapered over with gold, the ground is then painted the required colour, and metallic foils fixed behind the glass jewels, which add much to their brilliancy and effect.

Papier-maché of the *best* quality is produced by attaching together by means of a paste, composed of flour and glue, a given number of sheets of spongy grey paper, pasting the same on a core of iron, brass, or other metal, representing the interior; between every layer of sheets, the core with its cover is exposed for twelve hours to a heat of at least 100 degrees to dry it; it is then roughed with coarse files. The attachment of the several coatings and dryings are repeated until the necessary thickness is arrived at: the articles, or portions thereof, are then immersed in linseed oil and tar spirits, which render them unaffected by damp. They are then dried in a temperature of not less than 200 or more than 260 degrees; after which, the tray, box, or portion of the article intended to be made, is planed, rasped, or turned to the proper shape, by workmen, who also, where necessary, fit in the internal divisions; then follow repeated coatings of lamp black and tar varnish, and stovings, for twelve hours, at the temperature already stated. The inequalities on the surface are removed by rubbing with pumice-stone and water, and the artist commences his labours. Finally, the article is coated over with transparent copal varnish, exposed to a temperature of from 100 to 160 degrees, and a final polish is given by friction with rotten-stone and water, and the human hand.

The inlaying of pearl in papier-maché is a simple process, and does not consist, as some might suppose, and as the name indicates, in cutting out the material and inserting the substance inlaid; it is held simply by adhesion, and its application may be thus described: the pearl shell cut into such pieces or forms as may be desirable, is laid upon the article to be ornamented, a little copal or other varnish having been previously applied, the pieces of pearl at once adhere to it; thereafter, repeated coats of tar varnish fill up the interstices, and eventually cover the pearl. This extra varnish is removed, a uniform surface is produced, and the pearl exposed by rubbing with pumice-stone, polishing with rotten-stone, and finally banding.

It is one of the peculiarities of this manufacture, that while the inferior pulp quality is not subjected to any duty, that of the best quality and formed out of sheet paper *is*, at the rate of 1½*d.* per lb.: this operates unfavourably, and acts as a check upon the production of the superior article. These manufacturers desire to record their impression as to the advantages they have received from the institution of Schools of Design, and the opportunity they have afforded for the instruction of workmen in the art of drawing, by giving them access to superior specimens of ornament to copy from.—W. C. A.]

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196 **Pratt, Samuel**, *New Bond Street*—Manufacturer.

Saloon commode of English buhl, inlaid with tortoiseshell and colours, with or-molu mountings.—P. 750.—Plate 336.

[A style of decoration more particularly applied to furniture, and consisting of portions of various metals, tortoiseshell, &c., attached to the surface of the object to be ornamented, all finished off and reduced to a plane. The various pieces are formed by saw-piercing from the material about 1/16th of an inch in thickness, and are attached by glue, &c. It is a style adopted much more commonly on the Continent than in England. Considerable richness and effect are given by the brilliancy of the gilt or-molu mouldings, masks, &c., occasionally introduced. —W. C. A.]

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309 **Woollams, William, & Co.**, 110 *High Street, Marylebone*—Manufacturers.

Decorative paper-hanging: style, arabesque; pilasters in maroue ground, with gold ornaments; panel, green; flock, damask; styles, russet colour: adapted for drawing or dining rooms.—P. 75.—Plates 330 and 331.

[The process of producing paper-hangings may be thus described:—The wood blocks from which the impressions are taken are formed of thin layers of timber, keyed together to prevent them from warping; small pin points are introduced to secure "the register," or correct joining of the pattern. The colour is spread upon a sieve top, which floats on the surface of a fluid; the blocks are pressed on the sieve, and then applied to the paper to be ornamented: the various colours are applied separately. As the difference in form and the number of colours are increased, the blocks increase in number. Flock paper is produced by printing the pattern in an adhesive varnish, on which the "flock" (the cuttings from the surface of cloth) readily adheres. The above remarks apply to the best quality of paper-hangings. Common varieties are printed by rollers, and as many as 1,500 pieces have been printed in one day.—W. C. A.]

The collection of W. Woollams & Co. (309, p. 757) includes many examples, showing that the art is well carried on in this country.—*Juries' Reports*, Cl. 26, p. 548.

532 **Hardman, John, & Co.**, *Great Charles Street, Birmingham*—Manufacturers.

Crozier of a highly elaborate and ornamental character, style latter end of the 14th century; within the circular top a figure seated, with angels kneeling on each side; underneath, on bracket formed by continuation of the crockets, is a bishop kneeling, in the act of supplication. —P. 761.—Plate 389. (Mediæval Court).

[An exemplification of metal-working by the beaten method, the crozier being formed out of two thin plates of metal, brought into shape by hammering; the first process being the "raising" the flat metal into half the convexity of the object; the counterpart being made, the two parts are fitted together, the minute elevations which add to the relief being raised by "punching." The two halves, after being soldered together, form the skeleton, upon which the ornamental crockets, &c., are attached, they being also formed by hammering. The delicate reticulated work which surrounds the interior of the circle, and the perforated work forming the architectural part, out of which the top springs are produced by "saw-piercing," or cutting out the metal with minute saws. The figures, having been previously all but finished, are also attached by soldering. The engraver adds the surface decoration, and the whole is finally polished by friction.]

Chalice and communion plate: the former silver-gilt, with enamels introduced; style early part of the 14th century.

[The bowl of the chalice is formed out of a thin disc of silver by hammering; the knop or swell in the centre of the stalk is also formed by the same process; the external diameter of the foot, by several circles being turned in a lathe, after which they are cut into portions of circles, and when fitted to the required form soldered together. The roughness consequent thereon being removed, and the several inaccuracies in form corrected, the engraver introduces the subordinate lines and ornaments. The enameller applies his colours, and subjects the same to the action of heat until fused: after which, the chalice is gilt by the amalgam process, which, for this purpose, is found preferable; it is then burnished with stone burnishers. The communion plate is also "raised" or "beaten" up.

"Beaten work" differs from that produced by stamping, which it much resembles in the economy with which a variety of objects of different designs may be produced. Where a great number of similar character are required, they may be produced quicker by stamping; but they are all of one pattern, as is the steel "die" or matrix into which the metal is forced. Steel dies are expensive, and each change of pattern involves the production of a new die, whereas the skilful hammerman varies his design by his simple tools, aided by his taste and judgment. It was in the practice of this art that the ancient or middle-age workmen introduced that "infinite variety" which marks their existing labours, and makes them so valuable in comparison with much of what is now made.

The manufactory wherein the articles were produced, which form the subject of annotation, has arisen within the last fifteen years. A few years ago it was utterly impossible to have procured even the commonest article of church furniture in any appropriate style. The ancient modes of working in the various materials had been lost; and the late A. W. Pugin left it upon record that, in the first object ever produced by him in metal, viz. a hanging lamp, he was aided by an old German, a maker of jelly moulds, who was the only workman he could find sufficiently acquainted with the beaten mode of working metal to answer his purpose. The partial success of the experiment led to increased exertions, until, finally, a complete staff of workmen was organised (the origin of the manufactory now under consideration), who carried on simultaneously glass-painting, the making of incised brasses, corunnas, and altar lights, railings, &c., the vessels used at the altar, formed of the precious metals. Experiments were also made in the old methods of working iron: enamelling, and other lost arts were revived. The result has been such that now upwards of 200 workmen are employed in the production of furnishings in the mediæval style, suitable for the adornment of sacred or civil edifices, domestic dwellings, &c.—W. C. A.]

"J. Hardman and Co. (700, p. 668). Such of the productions contributed by this firm as belong to Class 22 are admirable in workmanship, and unrivalled for perfect development of the mediæval design and taste in which they are executed. The designs have been for the most part, it is understood, prepared by Mr. A. W. Pugin, and reflect great credit on that gentleman; but the Jury are more particularly impressed with the very perfect manner in which Messrs. Hardman have developed the artist's conceptions. It evinces a skill in manipulation which might, they conceive, be exhibited to still greater advantage in brass-work of a more varied and ornate style than may be admissible in the particular species of mediæval art to which they have confined themselves."—*Juries' Reports*, p. 502.

"John Hardman and Co., Mediæval Court (532, p. 761), exhibit a rich collection of articles for church use, in silver, and in silver gilt and enamelled. They have adopted the mediæval style. The workmanship is good, bold, and well defined. Two large closets contain the communion-cups, crosiers, monstrances, pyxes, and crucifixes; for which the Jury award them the Prize Medal." (Awarded a Council Medal by Jury of Class 22.)—*Juries' Reports*, Cl. 23, p. 516.

CLASS XXIX.

MISCELLANEOUS MANUFACTURES.

44 **Leuchars, William**, 38 *Piccadilly*—Inventor and Manufacturer.

Lady's dressing-case, made of the finest walnut wood, mounted with massive pierced solid silver, enriched and fastened with gilt nobs and pins, in the mediæval style; the interior fittings of chased silver and parcel gilt, to correspond; and an elegant looking-glass frame, fitted with candle sconces and branches.

Gentleman's dressing-case.

Despatch-box and writing-desk, of a new pattern, with registered lock.

Travelling tea equipage, for two persons.

Travelling bags, containing every requisite for ladies and gentlemen, &c.—P. 791.—Plate 346.

"Leuchars, W., 38 Piccadilly, London. (Class 29, No. 44, p. 791.) The silversmith's work in the dressing-cases of Mr. Leuchars is well made, elegant, and solid. A lady's dressing-case of walnut wood, mounted in the mediæval style, with pierced silver fittings, is particularly to be remarked. The Jury award Mr. Leuchars the Prize Medal."—*Juries' Reports*, Cl. 23, p. 516.

"Leuchars, W., 38 Piccadilly. (Class 29, No. 44, p. 791.) Prize Medal (the same award by the Jury of Class 23) for various dressing and travelling cases, tastefully designed and of excellent workmanship. The following are some of the articles deemed worthy of special notice:—A lady's dressing-case of walnut-tree, clamped with pierced silver plates and corner-pieces in mediæval style, and fitted with a variety of silver-mounted toilette bottles, with a looking-glass and candle-holders, the value of which was stated to be 300*l*.; a very convenient sac-de-voyage for a gentleman, in plain morocco; and a cylindrical morocco case, containing a plate travelling tea equipage, including a tea-pot, an apparatus for boiling water, and knives and forks, the price of which is 18*l*."—*Juries' Reports*, Cl. 29, p. 655.

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136 **Sangster, William & John**, 140 *Regent Street* and 70 *Cheapside*—Manufacturers.

Parasols, covered with satin and guipure lace, elaborately embroidered, with elegantly-carved ivory handles, inlaid with gold and enamelled.

Whips and canes, with unique and tasteful mountings, in gold and silver.

To these exhibitors is due the merit of the application of alpaca to umbrellas and parasols, letters-patent for which were granted to them in 1848. This material is made of a peculiar kind of wool, the produce of the alpaca sheep, an animal having a long fine wool, resembling the hair of the Cashmere goat. Alpaca, during the last ten years, has been gradually coming into use as a substitute for silk in many articles, and is manufactured on a very extensive scale at Bradford and other places in Yorkshire.

The advantages offered by the use of alpaca for umbrellas, as stated by the patentees, are great durability and a moderate price. The sale of these umbrellas has already exceeded 100,000, and is increasing.

These exhibitors have also, since the close of the Exhibition, introduced China crape for parasols, which, for elegance and beauty of appearance, is said to be superior to the ordinary materials used in the covering of parasols. —P. 797.—Plate 406.

" Sangster, William and John, 140 Regent Street (Cl. 29, No. 136, p. 797). Prize Medal; for silk parasols and umbrellas of excellent quality, and for their application of alpaca cloth to the coverings of parasols and umbrellas. Alpaca cloth is made of the undyed wool of the Peruvian and Chilian sheep, and is therefore not liable to fade; nor is it acted upon by salt water; hence alpaca parasols and umbrellas are much used at watering-places, and are also largely employed as a cheap substitute for those covered with silk. Alpaca parasols sell at 5s. each, and umbrellas at from 6s. to 8s. wholesale.

" The consumption of alpaca cloth in the umbrella trade, notwithstanding its recent introduction, is very considerable, for it appears that the production for this purpose amounted, during the last year, to the value of 25,000*l*. Its price is about 2*s*. per yard."—*Juries' Reports*, Cl. 29, p. 661.

For additional information as to umbrellas, &c., see *Juries' Reports*, pp. 656 & 657.

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180 **Ainge & Aldred**, 126 *Oxford Street*—
Manufacturers.

Group of bows, arrows, and archery accoutrements.

Fishing-rods and tackle.

Hickory salmon-rod, with improved screw ferrules, ornamented and chased, three glued-up tops, and stoppers of carved ivory, representing the heads of the salmon, grayling, and trout.

A three-piece glued-up trout-rod, with engine-turned silver ferrules and acorn stoppers.

Unique three-piece glued-up pocket fly-rod, with gilt ferrules, ornamented with emeralds and rubies.

Punt-rod, with inlaid butt of ebony and pearl, ornamented with silver fittings; and various other rods.

A winch, of silver, engine-turned, of chaste design, with an emerald inlaid in the handle.

A large check winch, elaborately engraved and gilt.

A small chased winch, with a ruby set in the handle.

Lines of fine silk and hair, tapered, plaited, and twisted.

A new universal tackle-case, invented by the exhibitors, folding up into a few square inches, containing a reel for lines, fly-book, spinning-tackle box, float-case, pockets, and other accommodation for the angler; useful for travelling, on account of the great number of articles which can be carried in so small a space.

Improved telescope landing-handle, registered 15th April 1851, which is capable of being carried while fishing, and of being immediately used, when required, either with a net or gaff-hook.

Variety of articles used in angling.—P. 800.—Plate 407.

[The wood of which fishing-rods are made is in general hickory, and the top sometimes formed of lance or other wood; not unfrequently two varieties of wood are combined by splicing. For convenience of carriage the rod is at times divided into four or more pieces, which are held together when in use by screws or slip joints; others are tied together by means of cord: this latter method is occasionally preferred by practical anglers. The eyes or conductors of the line, small brass rings secured to the rod by a small slip of metal and tied or wrapped with silk thread: this arrangement allows the eye to fold to the side of the rod when not in use, and is a vast improvement on the old permanently projecting eye.

The winch or reel, which is made of metal, should be as light as may be consistent with use, and able to resist accidental blows; it should run freely, yet be well fitted, and steady in its motion, any check occurring when " a fish" is hooked and line " paying out" will be at the risk of the game and tackle; hair lines are preferable to all others. In fly-fishing the flies should be tied upon gut, as being strong in proportion to its thickness: veteran anglers may be met with who boast of the heavy trout captured " with a single hair." It is only, however, those experienced in all the wiles of the craft who can accomplish such feats.—W. C. A.]

Bows of Spanish and English self-yew.

Two and three-piece bows, of yew, partridge-wood, snake wood, and purple and other woods, of various strengths, with ornamented worked handles of rich velvet, gold and silver lace, and carved ivory mountings.

Arrows of all kinds and weights, inlaid with various fancy woods and pearl, with silver and other piles, double and treble nocked, variously feathered, the whole elaborately painted and gilded.

Accoutrements—belts, shields, gloves, tassels, &c., worked with foliage in gold and silver.

Russia leather quiver, embossed with gold.

Grease-boxes, with devices of shamrock, thistle, and rose, surmounted with bugles and chains of silver.

Specimens of every description of accoutrements used in modern archery.

The " Camden Archery Tablet," registered 26th April 1851, for scoring the number of shots, and calculating their respective and total values.—P. 800.—Plate 406.

" Ainge & Aldred (180, p. 800) exhibit some spliced rods of excellent construction, each joint being composed of three pieces bound together longitudinally, and thereby less liable to twist or warp; whilst it retains an even spring and elasticity throughout." " Prize Medal for fishing tackle, and also for archery implements."—*Juries' Reports*, p. 678.

[It is most probable that the bow and arrow, after the simple propulsion of stones or other missiles from the human hand, was the earliest implement or weapon of offence or defence invented or devised: from the sacred volume we learn " that Ishmael dwelt in the wilderness and became an archer." In Greek mythology we find Apollo represented as " god of the unerring bow," while the use of the bow and arrow in ancient Egypt is demonstrated by the figures of archers sculptured on the walls of her crumbling temples. At Nineveh also we find evidence of its use. In England it seems doubtful as to the exact period at which the longbow was brought into use as an implement of warfare: eventually the crossbow was substituted. The skill, however, of the English archers was acknowledged on all hands to have been pre-eminent, and it contributed not a little to their success in France—more particularly in the battles of Cressy and Poictiers, and afterwards at Agincourt. In the battle of Chevy Chase the English bowstrings propelled arrows in length " a good cloth-yard or more." Of the deadly execution done, the ballad informs us—

> At the first flight of arrows sent,
> Full four score Scots they slew,

The Douglas was slain—

> —— by an arrow keene,
> Out of an English bow.

The bowman's craft was encouraged and patronised by royalty: the clergy recommended its practice from the pulpit; and Latimer devoted an entire sermon to the enforcement of its usefulness, to prove the healthful nature of it as an amusement, and lamenting its decline. Sir Roger Ascham wrote a treatise on the art, which at the time was much commended and admired. The wood out of which the bows were formed was that of the yew-tree: those of the renowned forest outlaw, Robin Hood, are described as being—

> All made of Spanish yew,
> Their bows were wondrous strong.

When the supply of yew became deficient in this country other woods were used, and lately those of South America, which in all their essential qualifications are found to be quite equal, while they are much more ornamental. The arrows were formed of various kinds of woods, and the heads were ordered to be brazed and pointed with steel well hardened, with the maker's name engraved upon them under the penalty of forfeiture and imprisonment: feathers were attached to the arrow, two of which being white and one coloured, showed the archer the position in which to place it. The art is now cultivated simply as an elegant amusement, which has led to a more highly ornamental style of appliances for its practice, all of which are enumerated in the Catalogue, and are figured in the wood engraving which accompanies the text.—W. C. A.]

Class XXX.

SCULPTURE, MODELS, AND PLASTIC ART.

158 **Stevens, George Henry**, *Stafford Row, Pimlico*—Designer and Manufacturer.

Pair of candelabra, manufactured in Keene's cement, in imitation of marble, and inlaid with glass mosaic; specimens of glass mosaic, engraved larger size to show the pattern. These candelabra were purchased by Her Majesty and presented to the Prince of Prussia.—P. 830. (Fine Art Court).—Plate 319.

[Keene's cement consists of gypsum burnt, soaked in alum water, then reburnt and ground to powder.—D. T. A.]

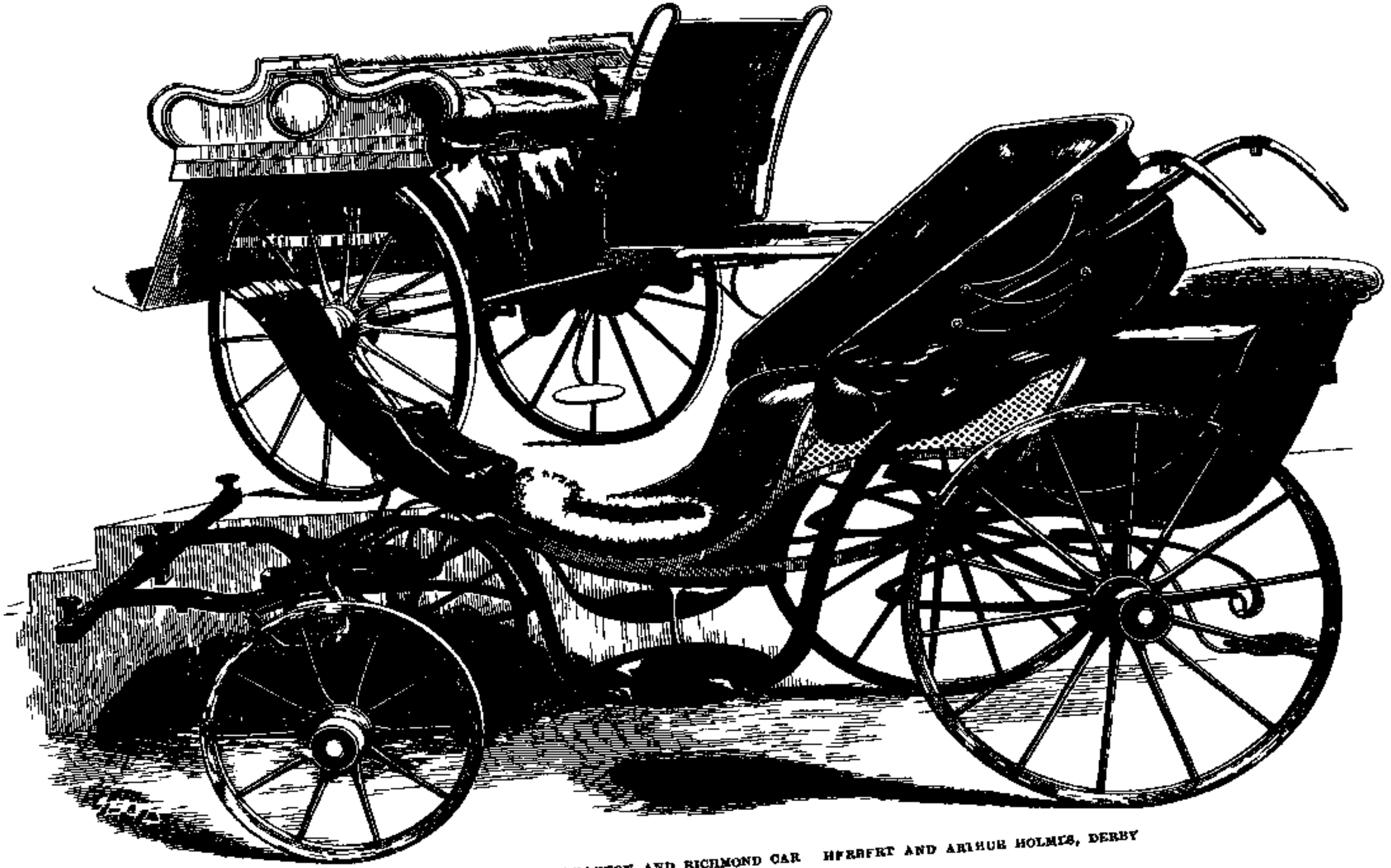
"A group of objects is exhibited, in a new kind of glass mosaic, by Mr. G. H. Stevens (Cl. 30, 158, p. 830), executed at about one-third the price of the ancient manufacture of this kind. These objects include a pair of spiral candelabra, made in Keene's cement in imitation of marble, inlaid with various patterns of glass mosaic, and intended for the decoration of a hall or drawing-room. The glass is in large tesseræ. There are also glass-mosaic tables, a slab containing various patterns for panels, and a specimen of heraldic decoration. The glass is stained or gilt, and the method is adapted for many purposes. The Jury have thought the method worthy of Honourable Mention."—*Juries' Reports*, p. 578.

89 **Wallis, T. W.**, *Louth, Lincolnshire*—Designer and Sculptor.

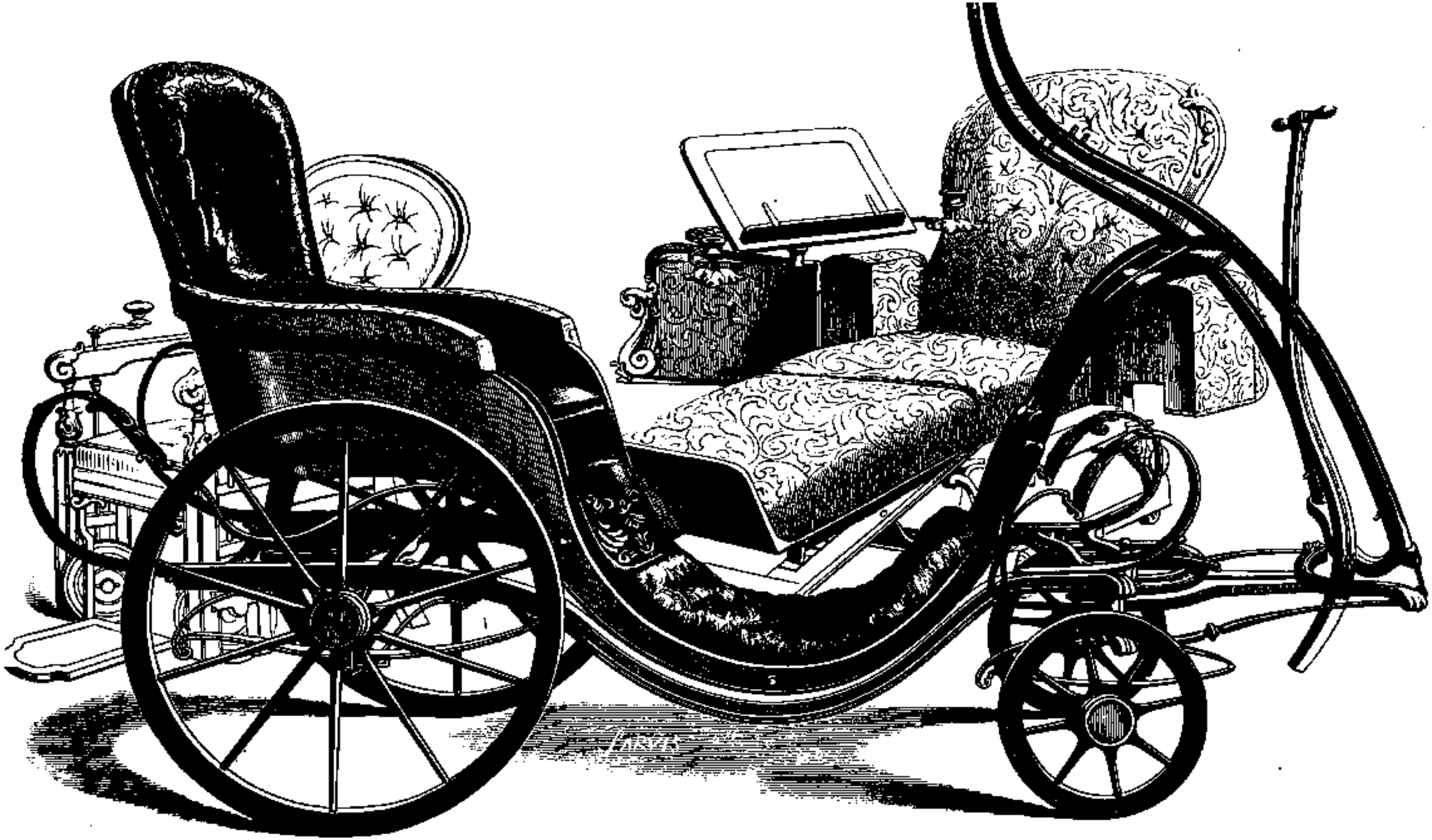
Specimen of wood carving, emblematical of "Spring," introducing the apple blossom, grape-bud, lamb's head, shepherd's crook, and spring flowers, &c. Carved from the solid out of lime-tree wood.—P. 815. (Fine Art Court.)—Plate 322.

[In the days when the timber-work of our ecclesiastical buildings formed a feature in their construction, no style of decoration was more generally taken advantage of than that of wood-carving, every portion exposed being shaped into quaint and curious devices; and much of what was not, bore strange legends carved thereon, differing much from the externally stolid appearance of the reverend father whose weight they bore. Very elaborately carved were the rood screens, and each moulding and poppet-head gave evidence of the artist's hand. Not a few civil and domestic edifices were adorned in like manner; among others Chatsworth and Petworth. Our great master of this art seems to have been Gibbons, who crowned his labours at Chatsworth by carving a point lace cravat, a woodcock, and a medal, which he presented to the Duke, "and over a closet door he carved a pen, which could not be distinguished from a real feather." All the wood-carving in England, says Allan Cunningham, "fades away before that of Gibbons at Chatsworth;" and Walpole remarked that "there is no instance of a man before Gibbons who gave to wood the loose and airy lightness of flowers, and chained together the various productions of the elements with a free disorder natural to each species." He was assisted at Chatsworth by Samuel Watson, a Derbyshire man. The art is now cultivated with success, and a considerable amount of that delicacy which characterised the great master alluded to has been perceptible in some of our recent productions.—W. C. A.]

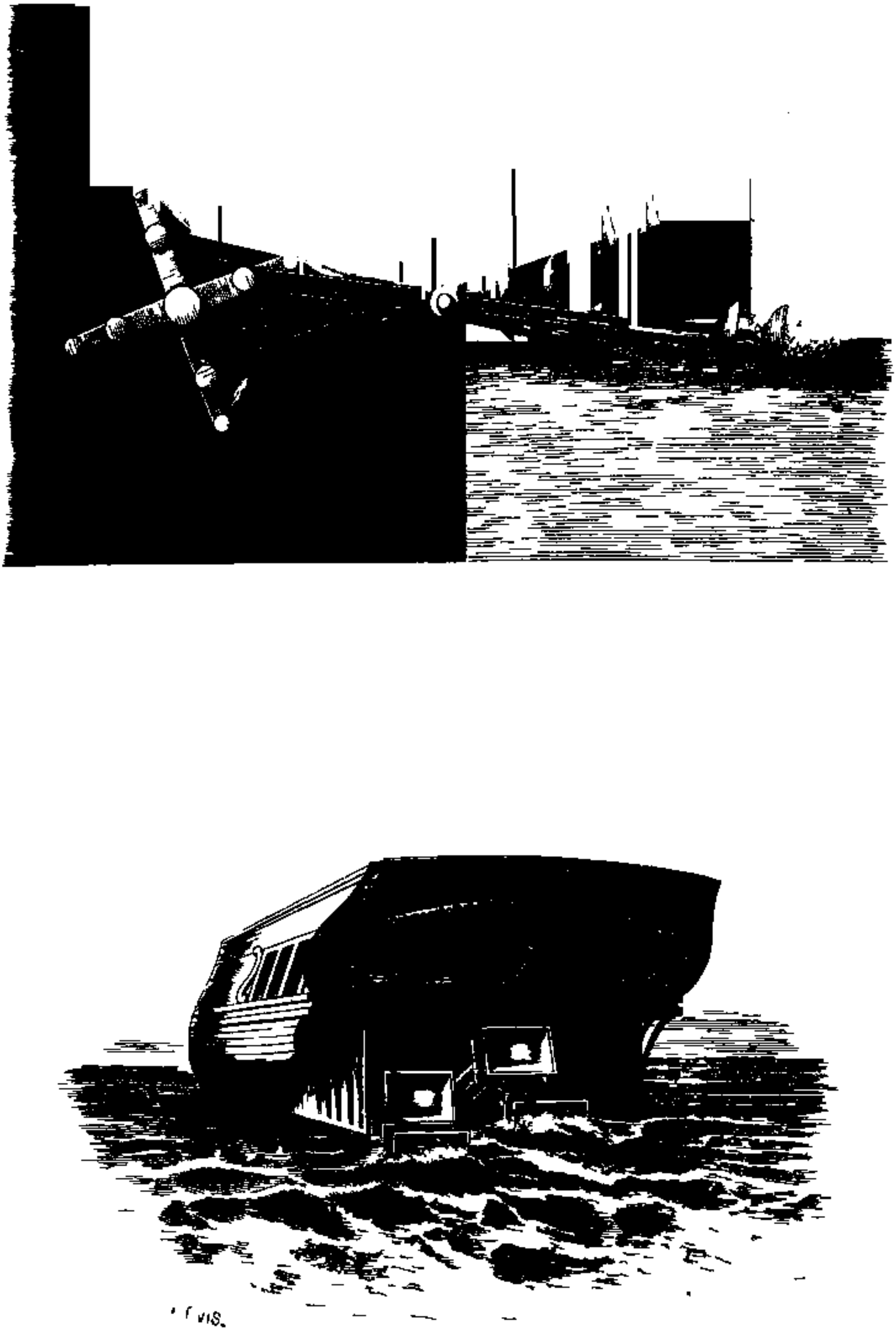
"Among the wood-carvings which may be considered purely as works of fine art, are those of T. W. Wallis, of Louth, in Lincolnshire (89, p. 925, and see illustration). This artist has represented various kinds of dead game with a true feeling for nature, and with an extraordinary mastery in every kind of detail. He is also entitled to the greatest praise for his carving of a mass of vine-leaves, which is executed with the most minute and scrupulous imitation of nature without losing the characteristics of a true plastic style. Prize Medal (Cl. 30, 89, p. 825)."—*Juries' Reports*, p. 694.



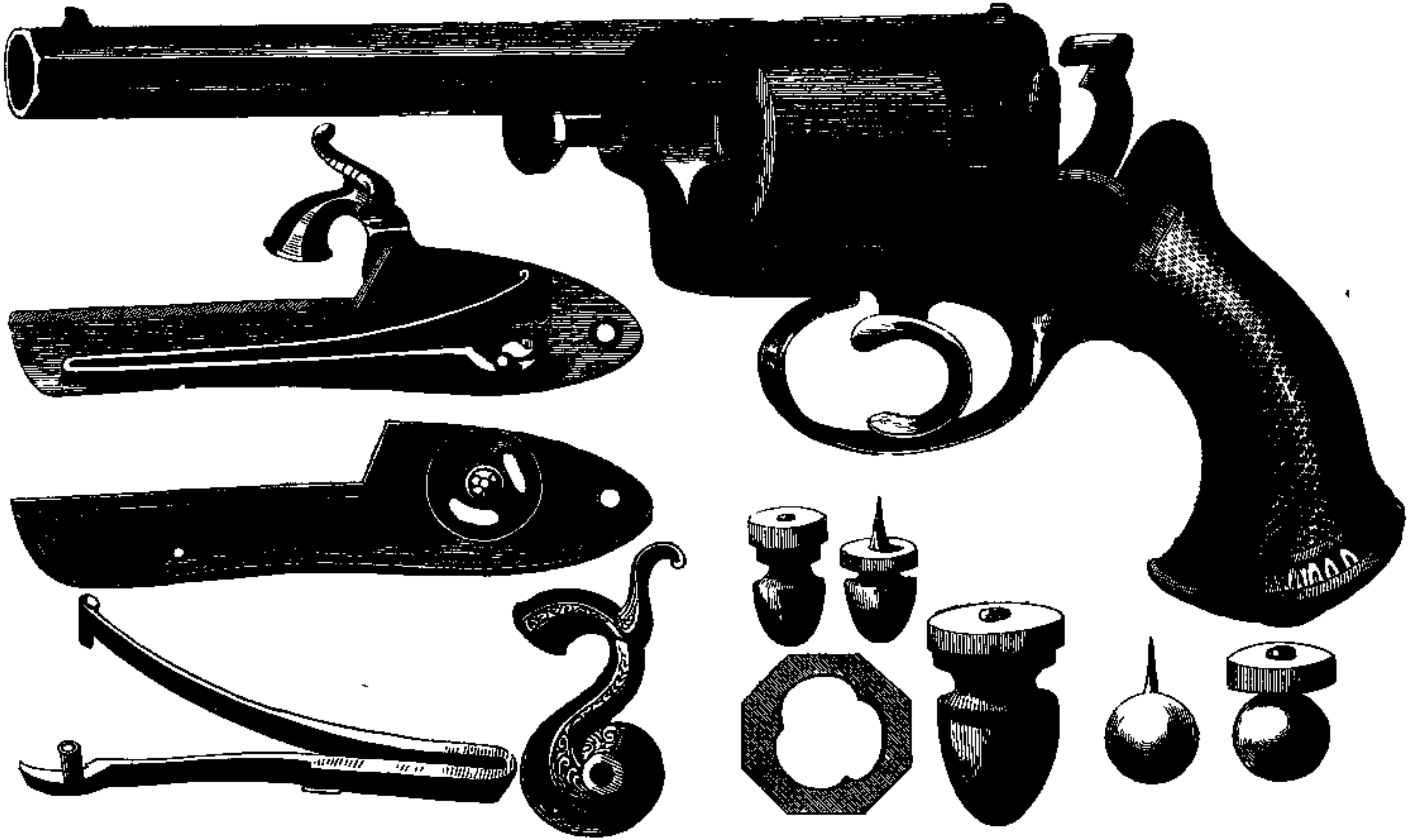
CL V, 872 —LIGHT PARK PHAETON AND RICHMOND CAR HERBERT AND ARTHUR HOLMES, DERBY



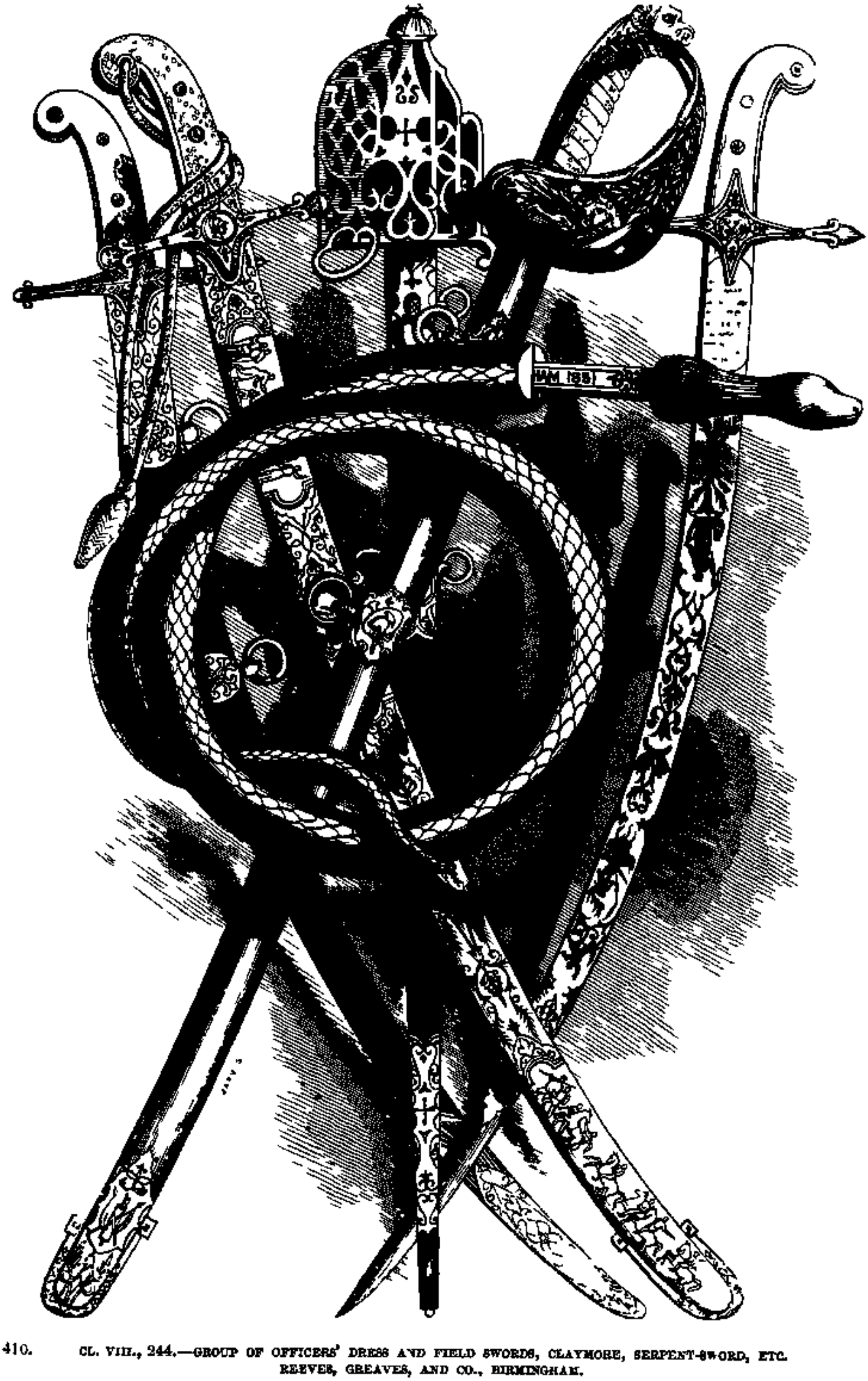
353. CL. V., 997.—IMPROVED FOUR-WHEEL CARRIAGE FOR INVALIDS, UPON NOISELESS WHEELS; INVALID RECUMBENT CHAIR, WITH LEG-REST, SHIFTING ELBOWS, ETC. PORTABLE SELF-PROPELLING CHAIR, WITH CYLINDRICAL GUIDE-WHEEL, VULCANIZED INDIA-RUBBER TIRES, ETC. J. WARD, 5 AND 6 LEICESTER SQUARE.



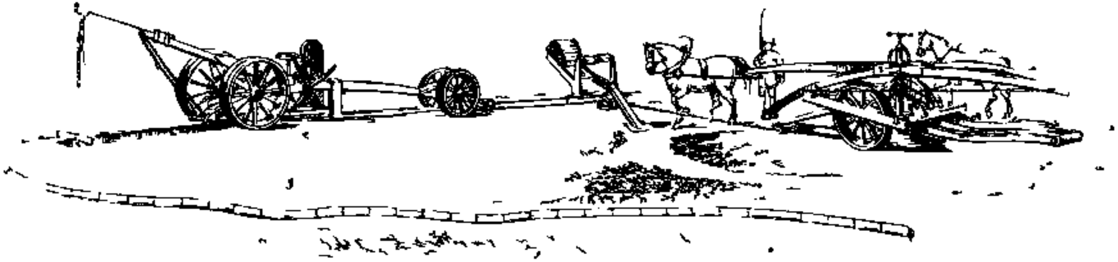
CL VIII 173 —PROPELLER FOR STEAM VESSELS LIEUT JENRICK, HULL



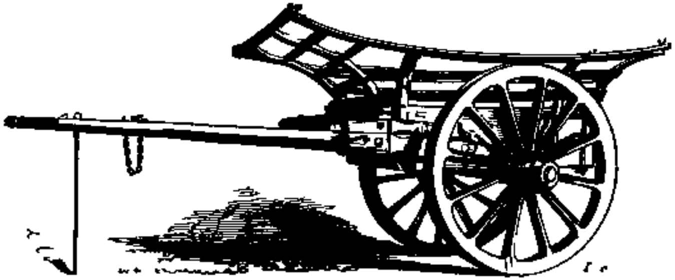
CL. VIII., 223.—PISTOL, ETC., SHOWING THE IMPROVEMENT IN LOCK, BULLETS, ETC. DEAN, ADAMS, AND DEAN, KING WILLIAM STREET, CITY.



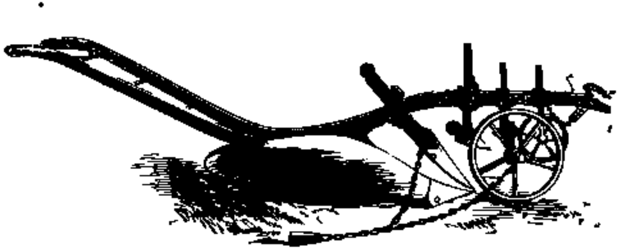
410. CL. VIII., 244.—GROUP OF OFFICERS' DRESS AND FIELD SWORDS, CLAYMORE, SERPENT-SWORD, ETC.
REEVES, GREAVES, AND CO., BIRMINGHAM.



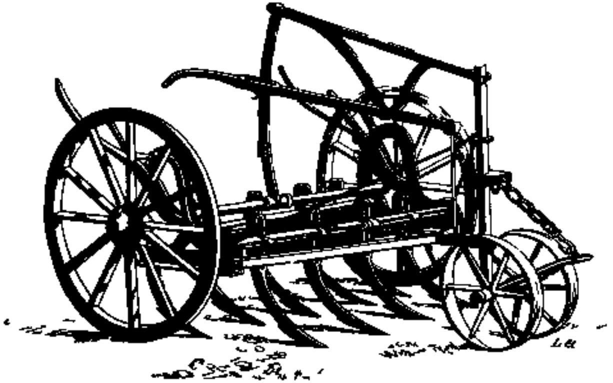
CL. IX, 28A.—FOWLER'S DRAINING PLOUGH



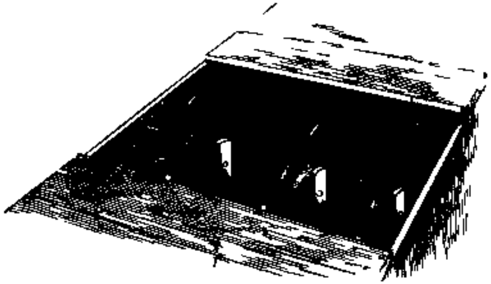
CL. IX, 15.—BUSBY'S SINGLE HORSE CART



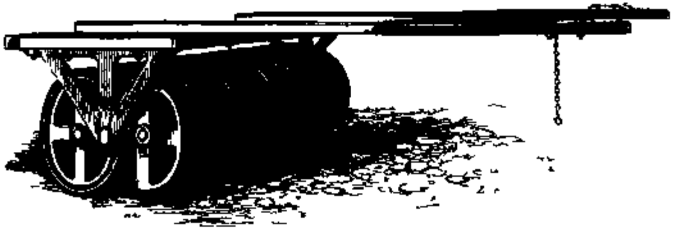
CL. IX, 15.—BUSBY'S TWO-HORSE PLOUGH



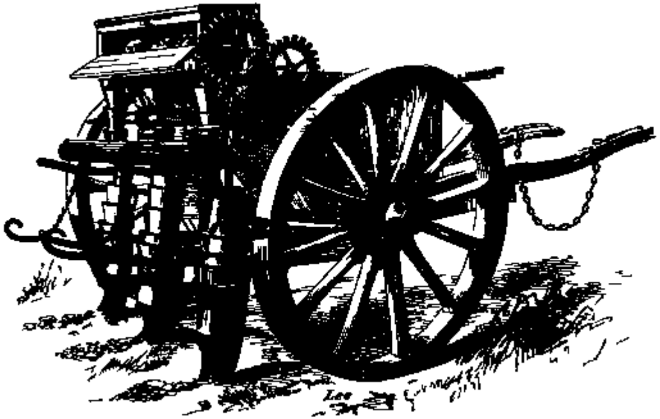
CL IX, 124.—BIDDEL'S SCARIFIER, EXHIBITED BY RANSOME AND MAY



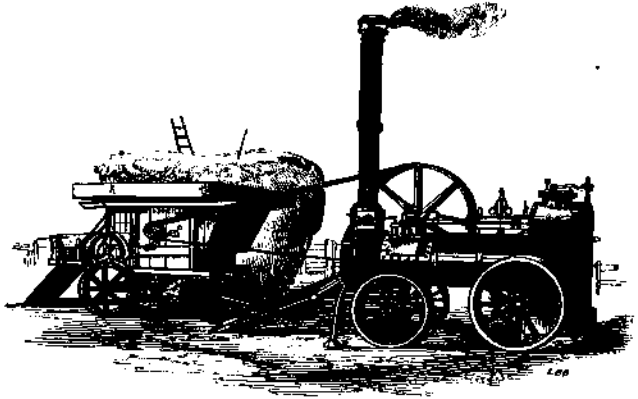
CL IX, 105.—LIQUID-MANURE DISTRIBUTOR



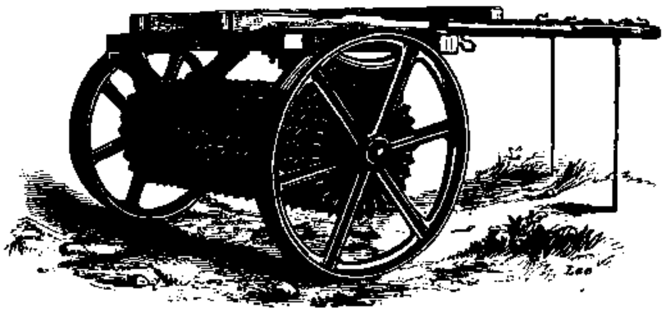
CL IX, 129.—GIBSON'S CLOD CRUSHER



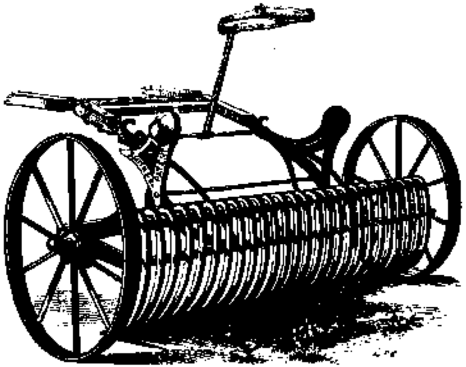
CL IX, 108.—LIQUID-MANURE DROP-DRILL



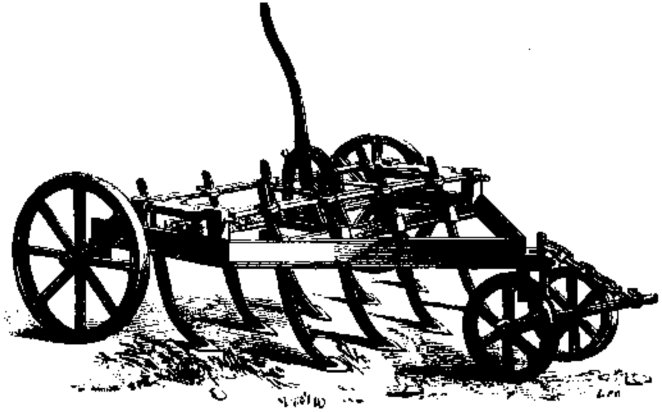
CL. IX., 233.—HORNSBY'S STEAM-ENGINE. 241.—HOLMES'S THRASHING MACHINE.



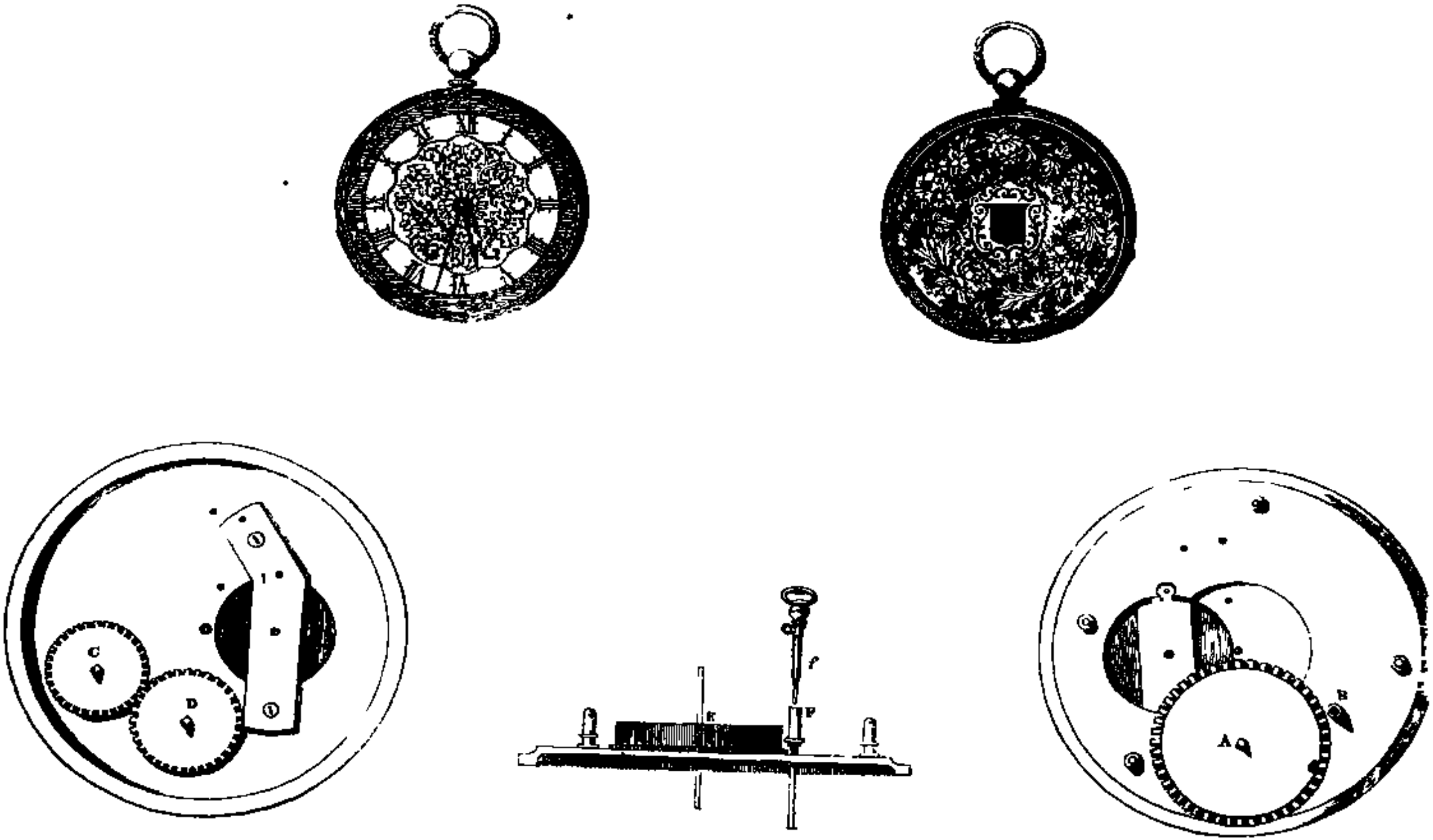
CL. IX., 135.—CROSKILL'S CLOD-CRUSHER.



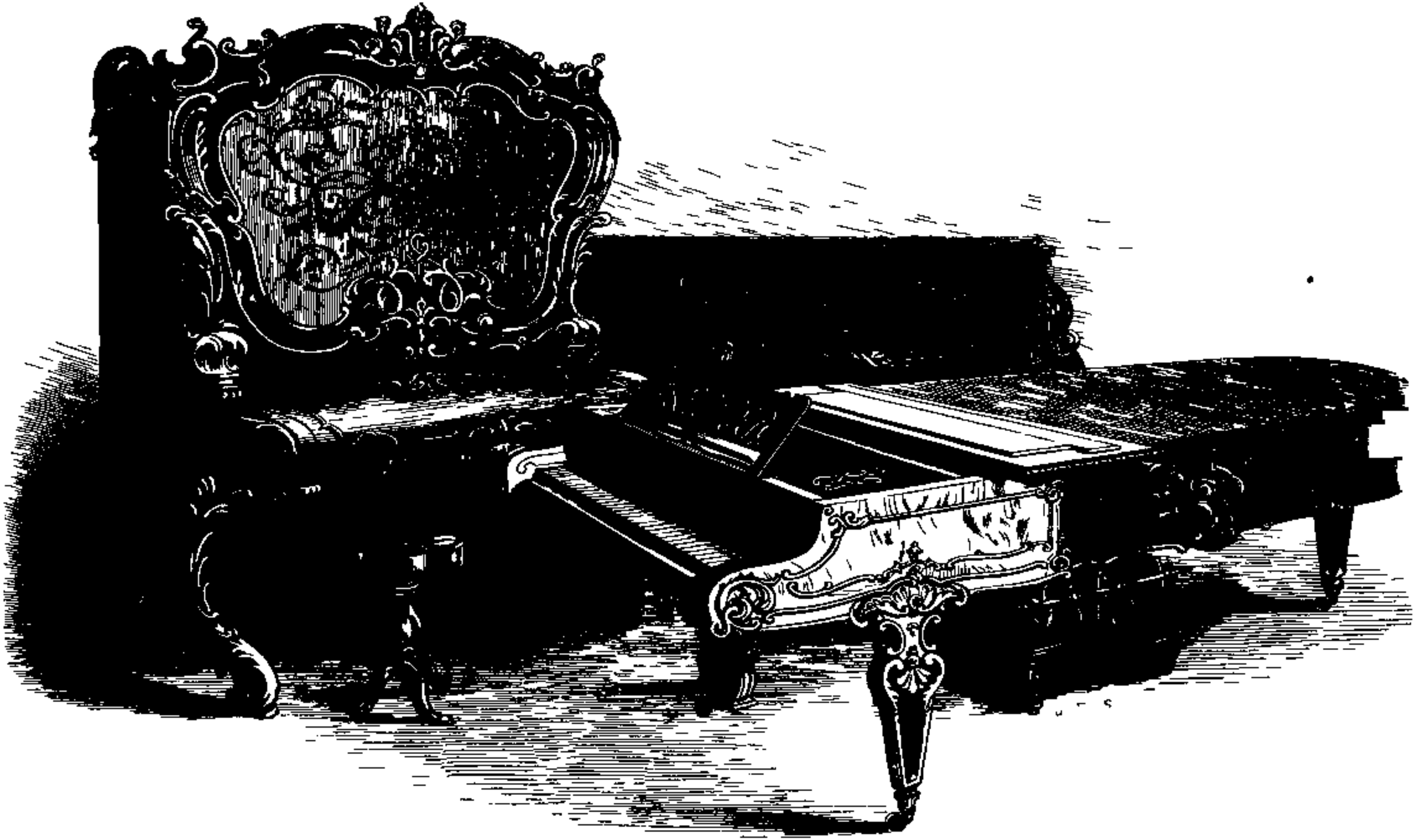
CL. IX., 216.—COLEMAN'S CULTIVATOR.



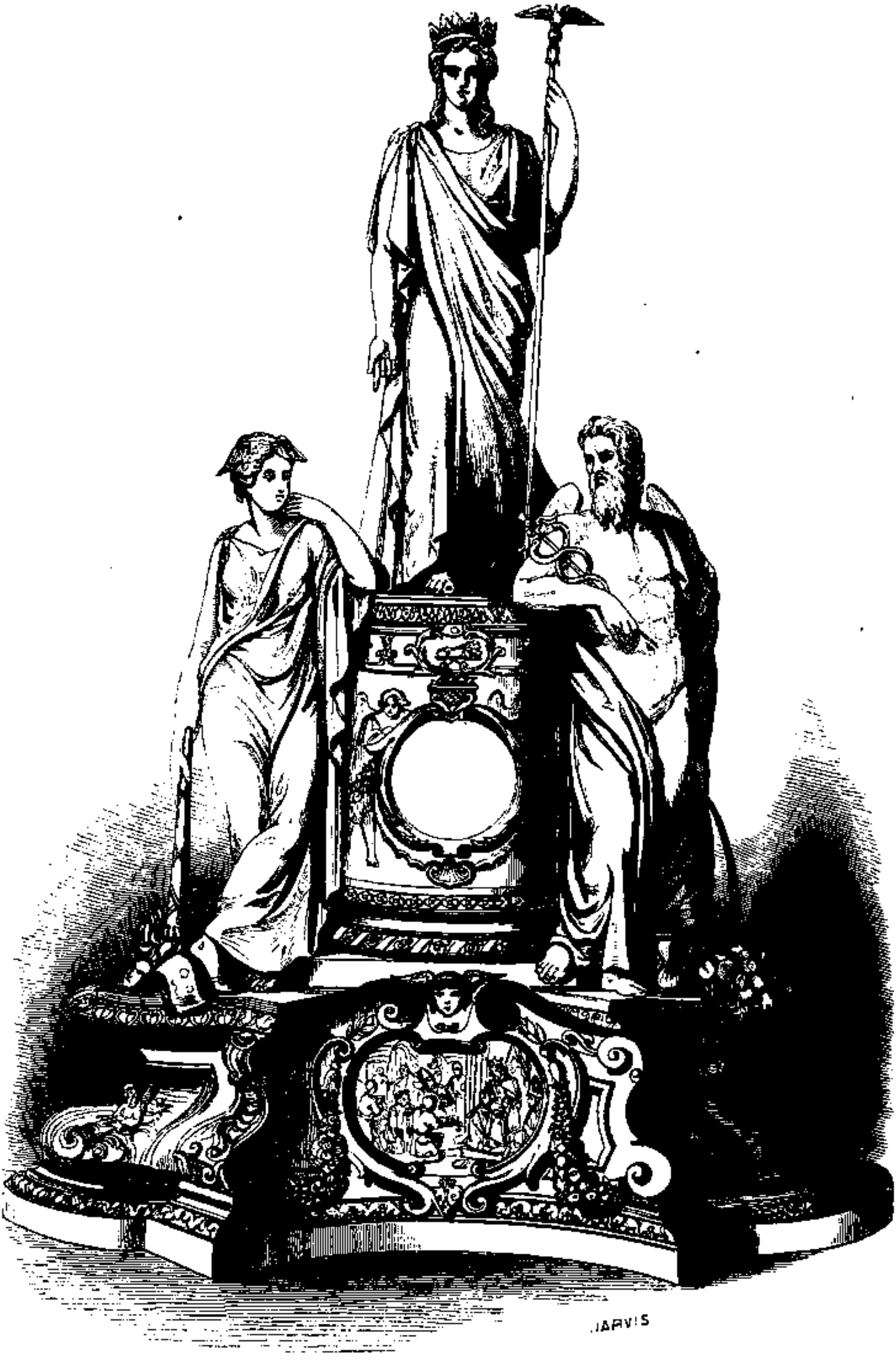
CL. IX., 234.—SMITH'S BALANCE-LEVER HORSE-RAKE.



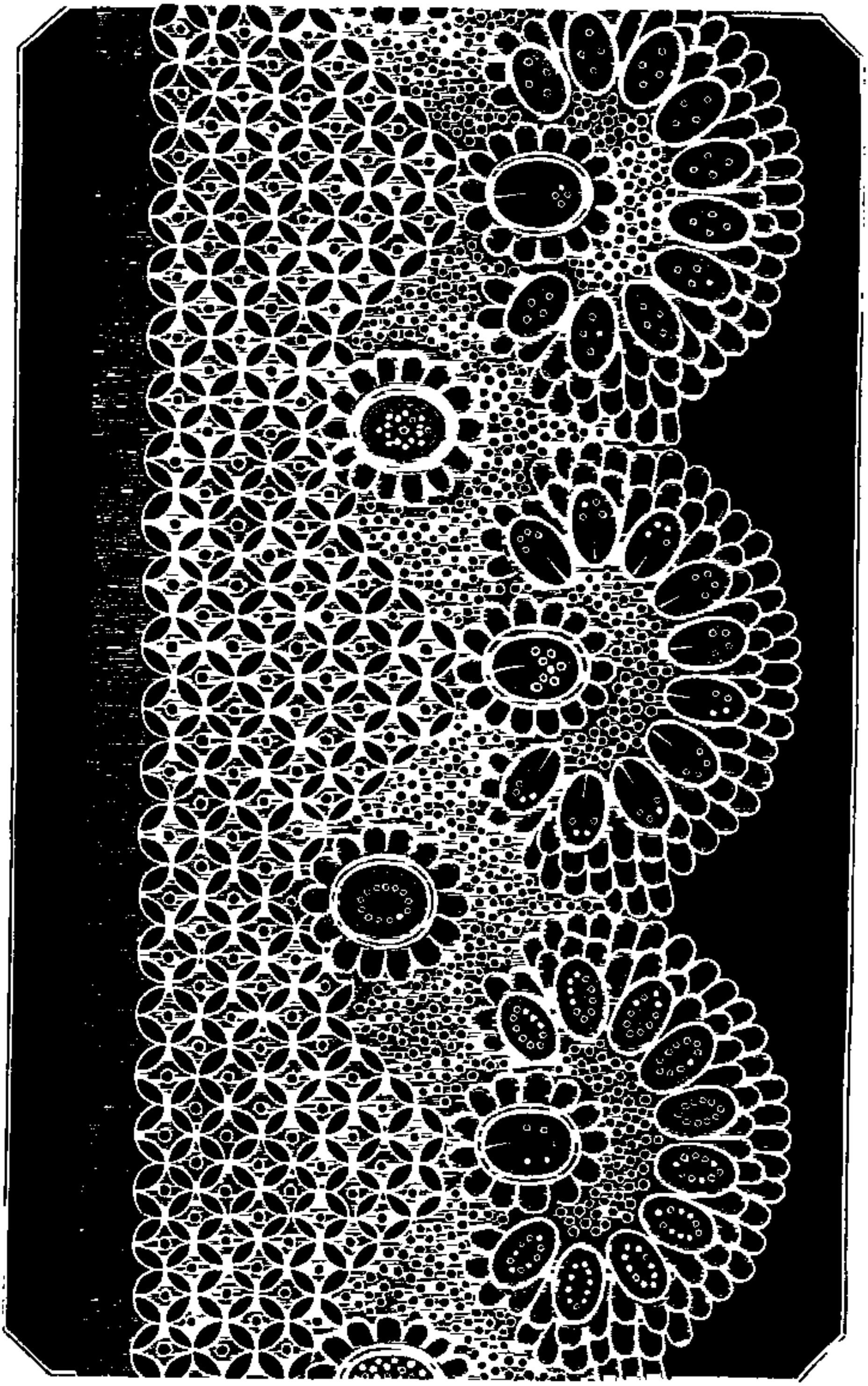
CL. X., 32.—SECTIONS OF WATCH MOVEMENTS, SHOWING THE CONSTRUCTION OF THE SOLICLAVE, OR SOLID-KEY WATCH.
W. H. AND S. JACKSON, RED LION STREET, CLERKENWELL.

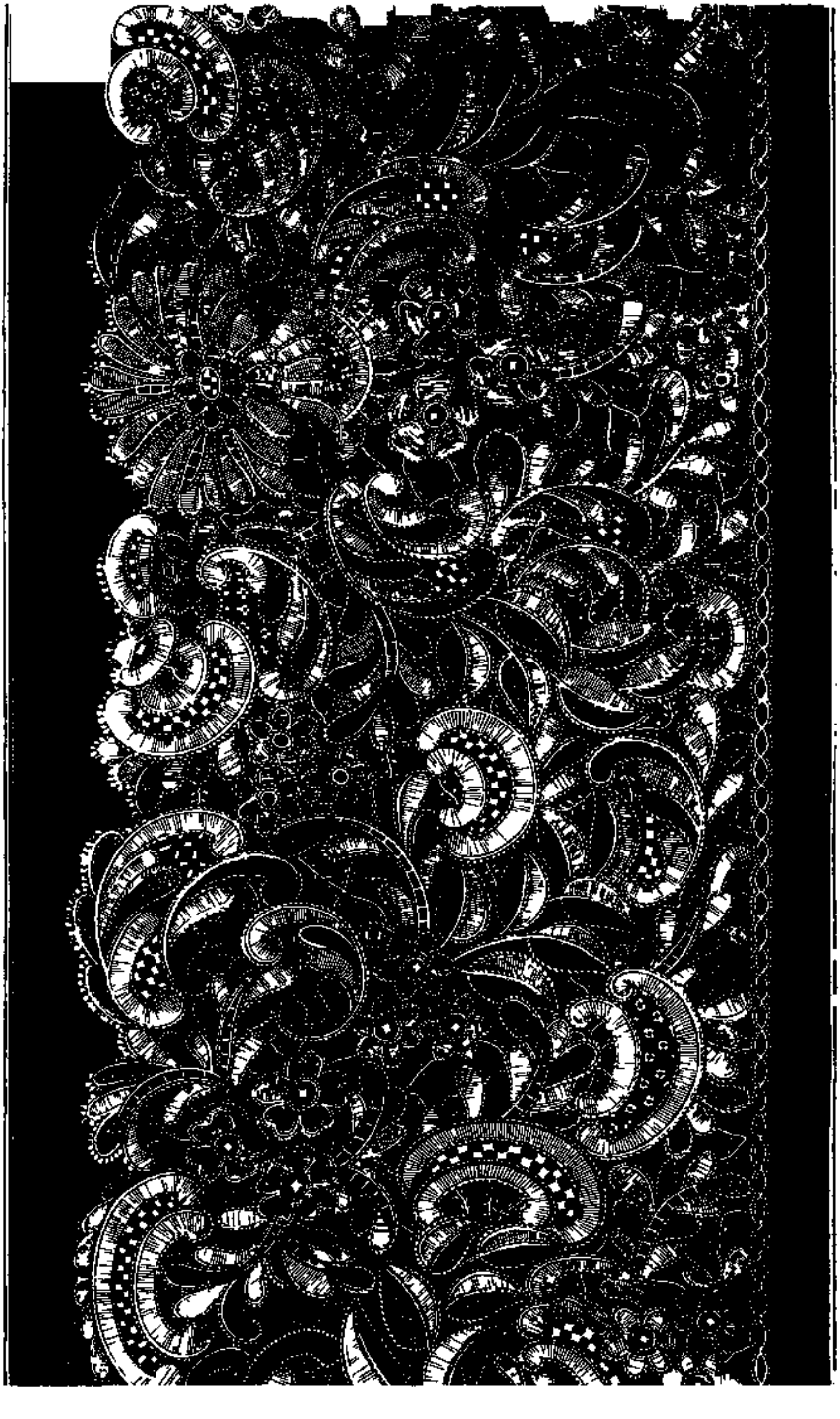


CL X 168.—GROUP OF PATENT PIANO-FORTES. COLLARD AND COLLARD, CHEAPSIDE

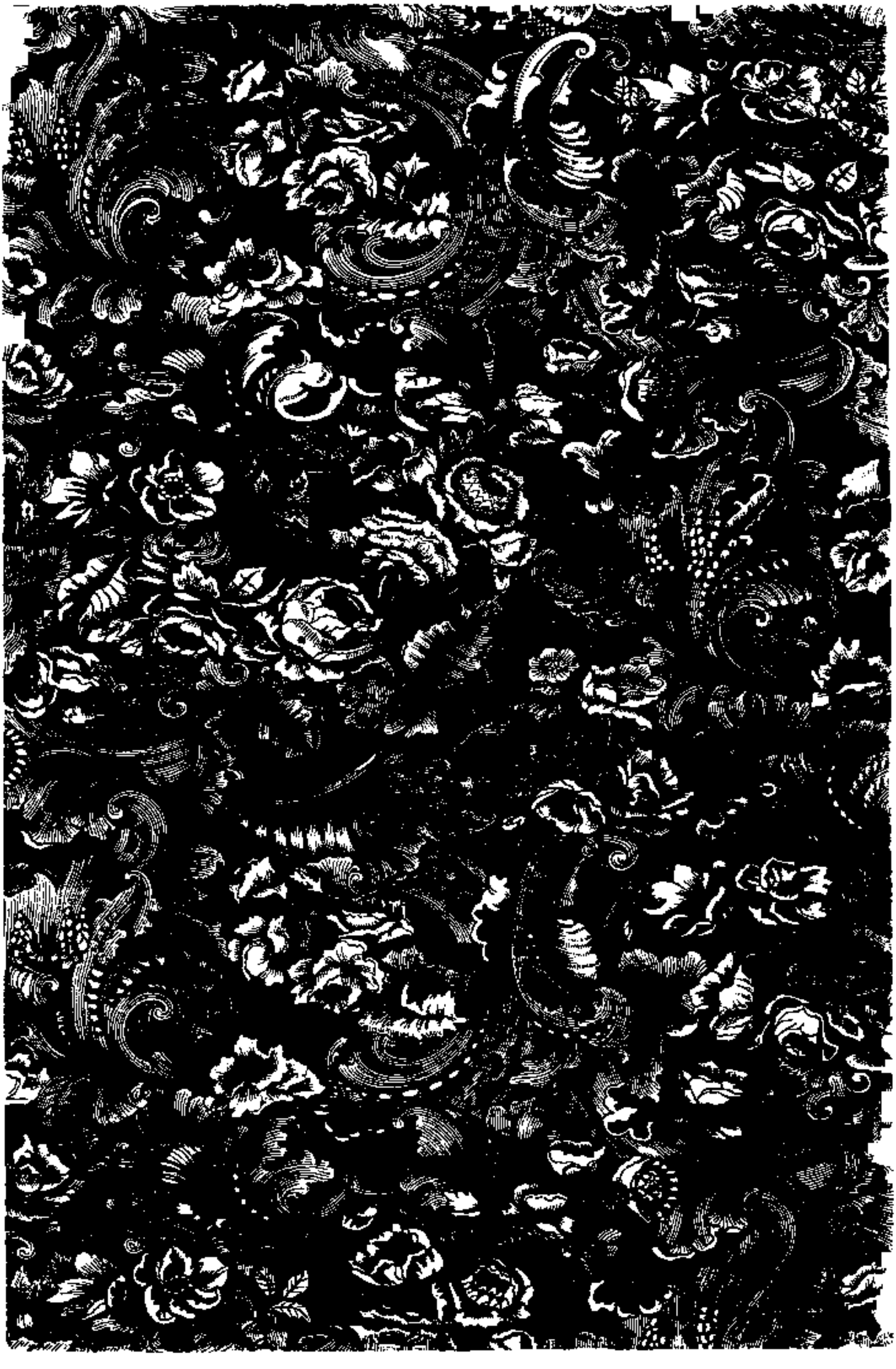


337. CL. X., 697.—ORNAMENTAL CLOCK-CASE ELECTROTYPED, WITH SEVEN SUBJECTS IN PANELS, REVOLVING AT THE BASE [illegible]

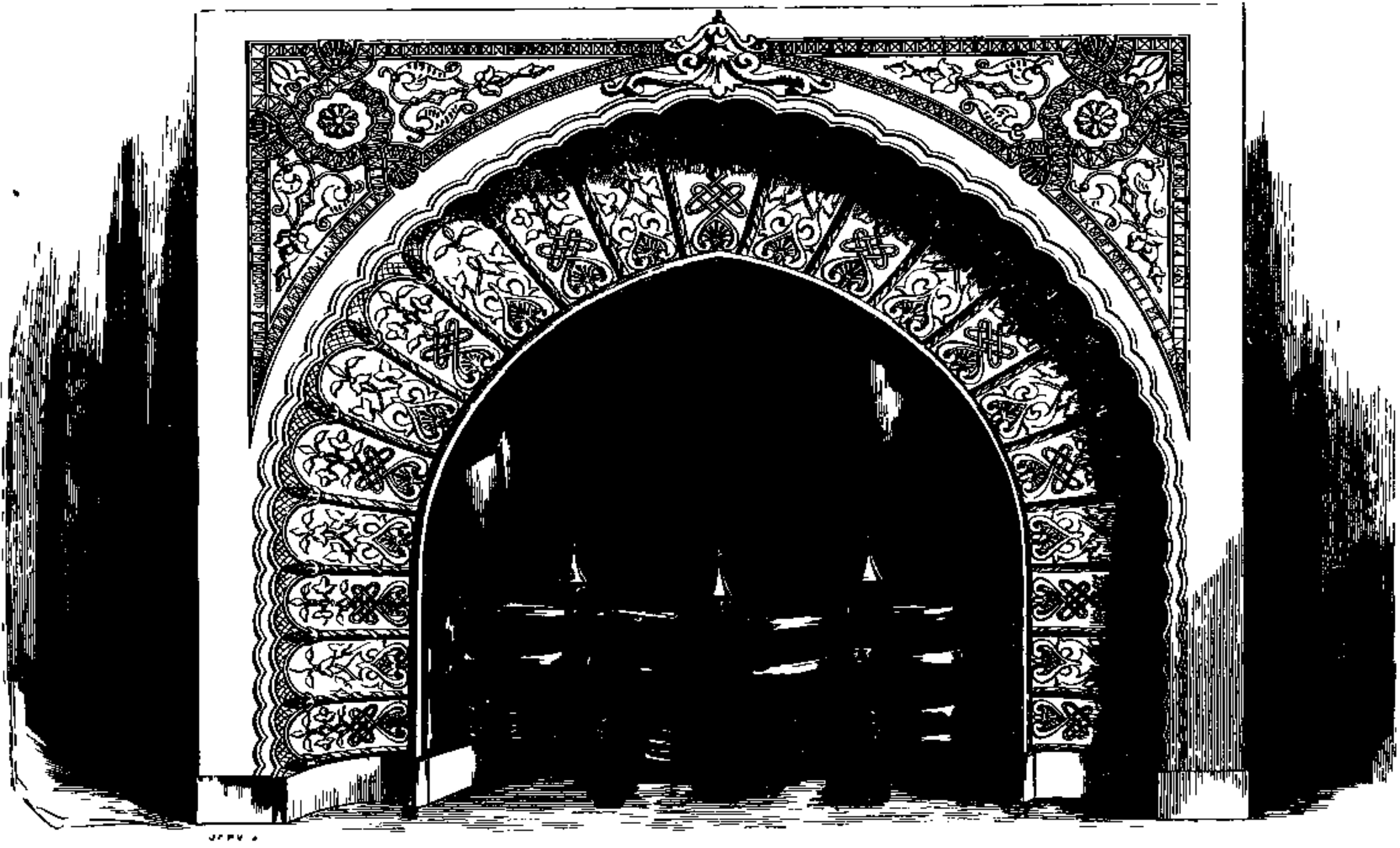




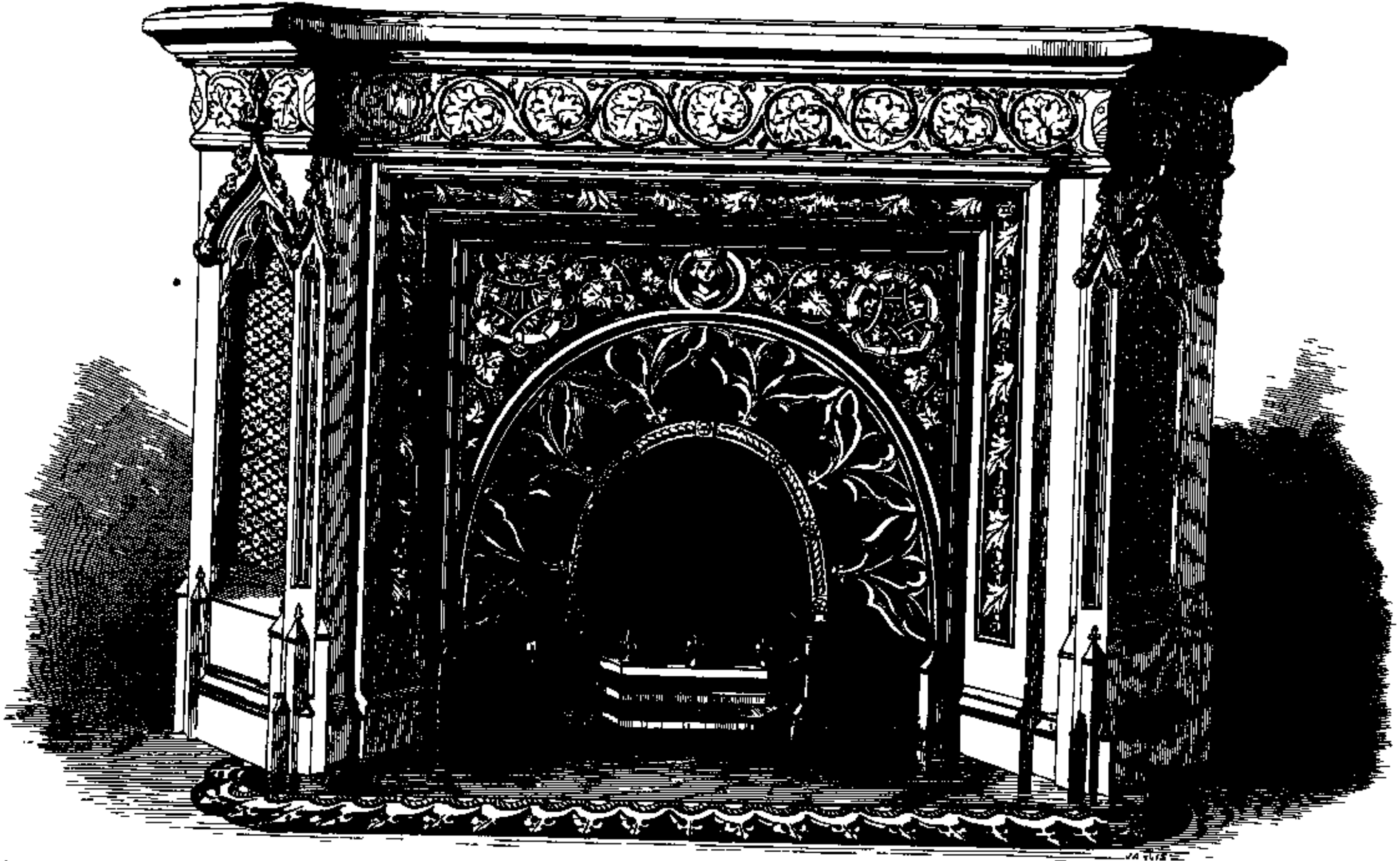
CL. XIX. 3.—SPECIMEN OF HONITON POINT LACE, FROM THE ASSORTMENT EXHIBITED BY
GROUCOCK, COPESTAKE, MOORE, AND CO., 5, BOW CHURCHYARD



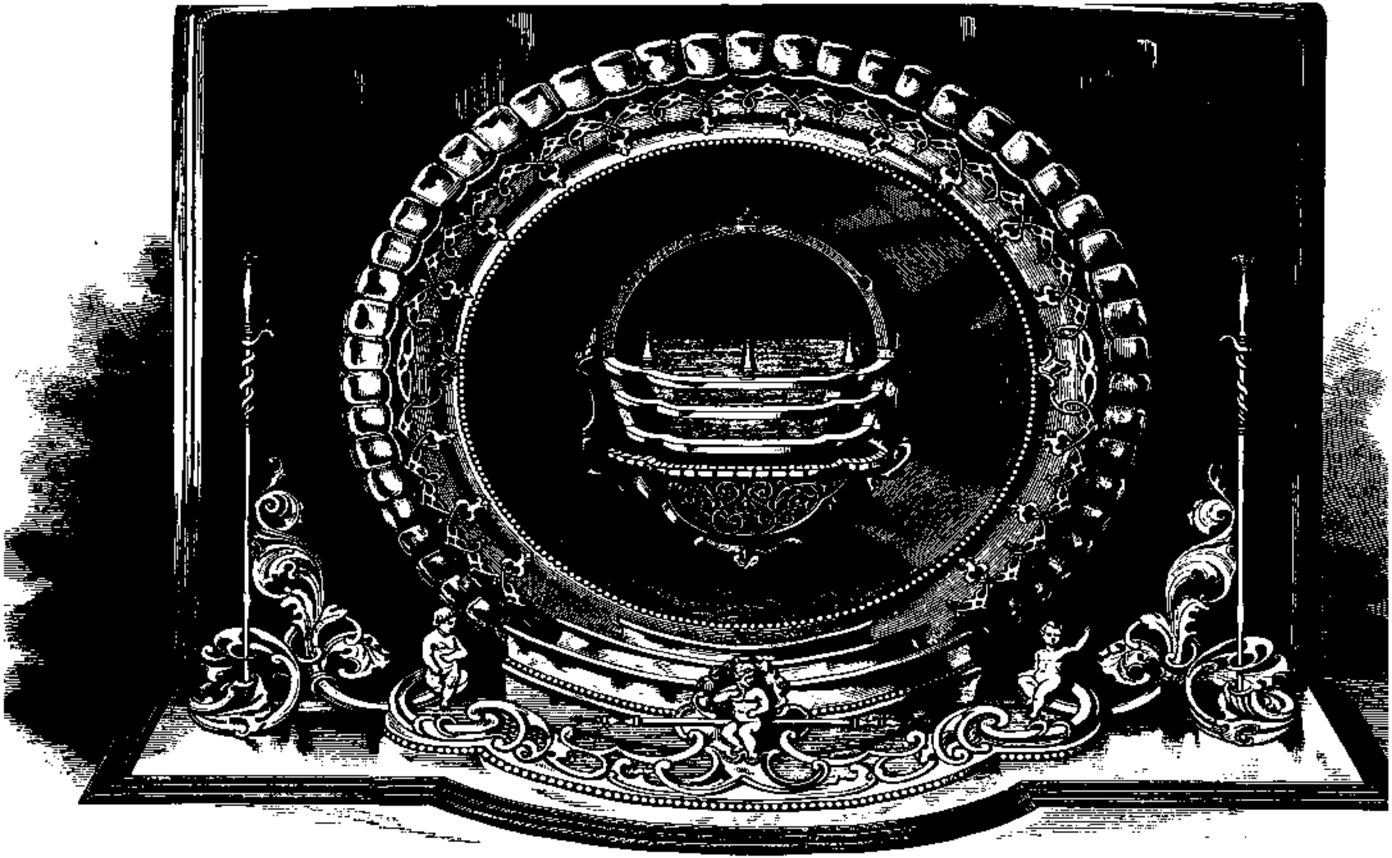
CL. XIX., 263.—PATENT VELVET-PILE TAPESTRY CARPETING.
PARDOE, HOOMANS, AND PARDOE, KIDDERMINSTER.



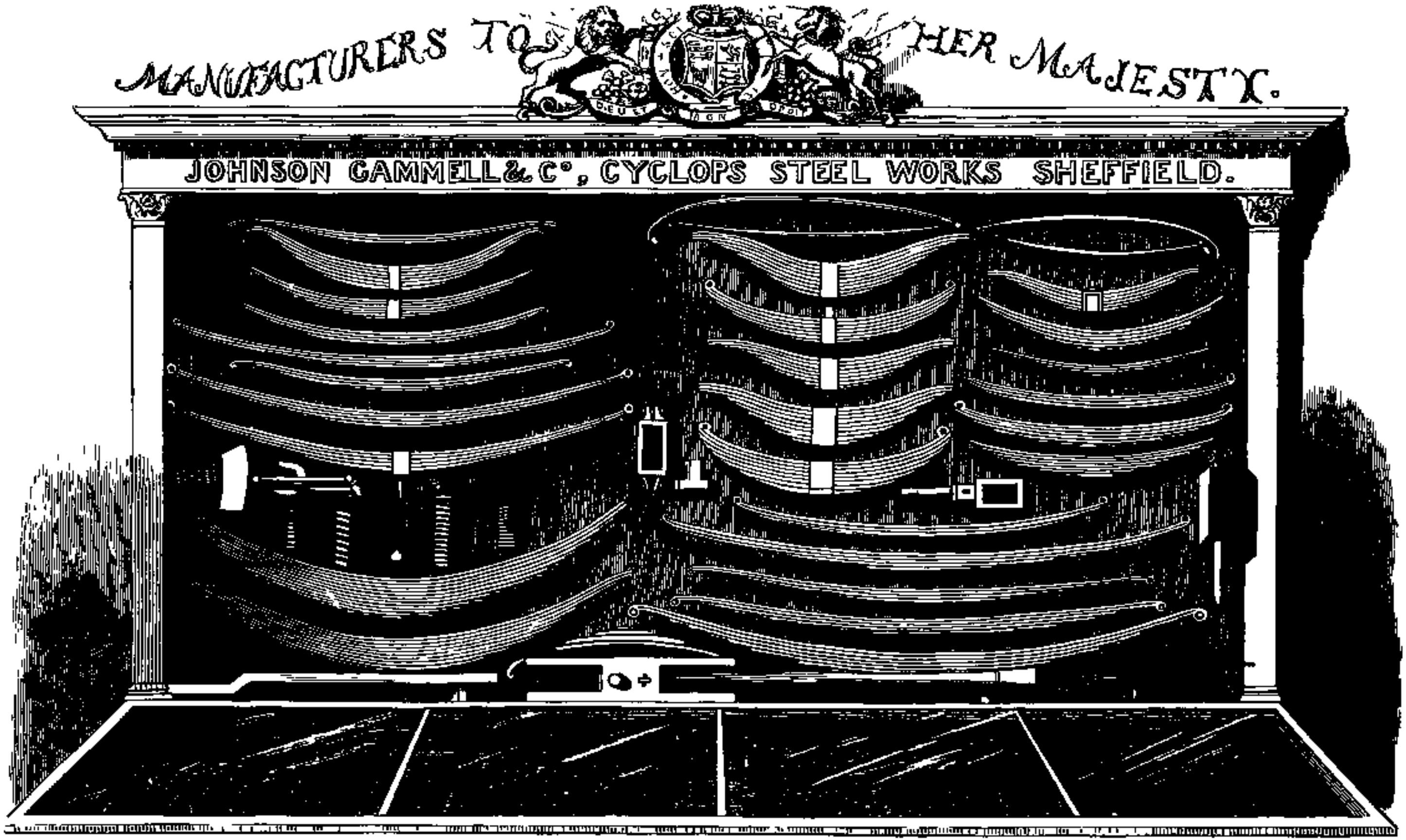
PL. XXII. 102. PATENT ALHAMBRA GRATE. STUART AND SMITH, SHEFFIELD.



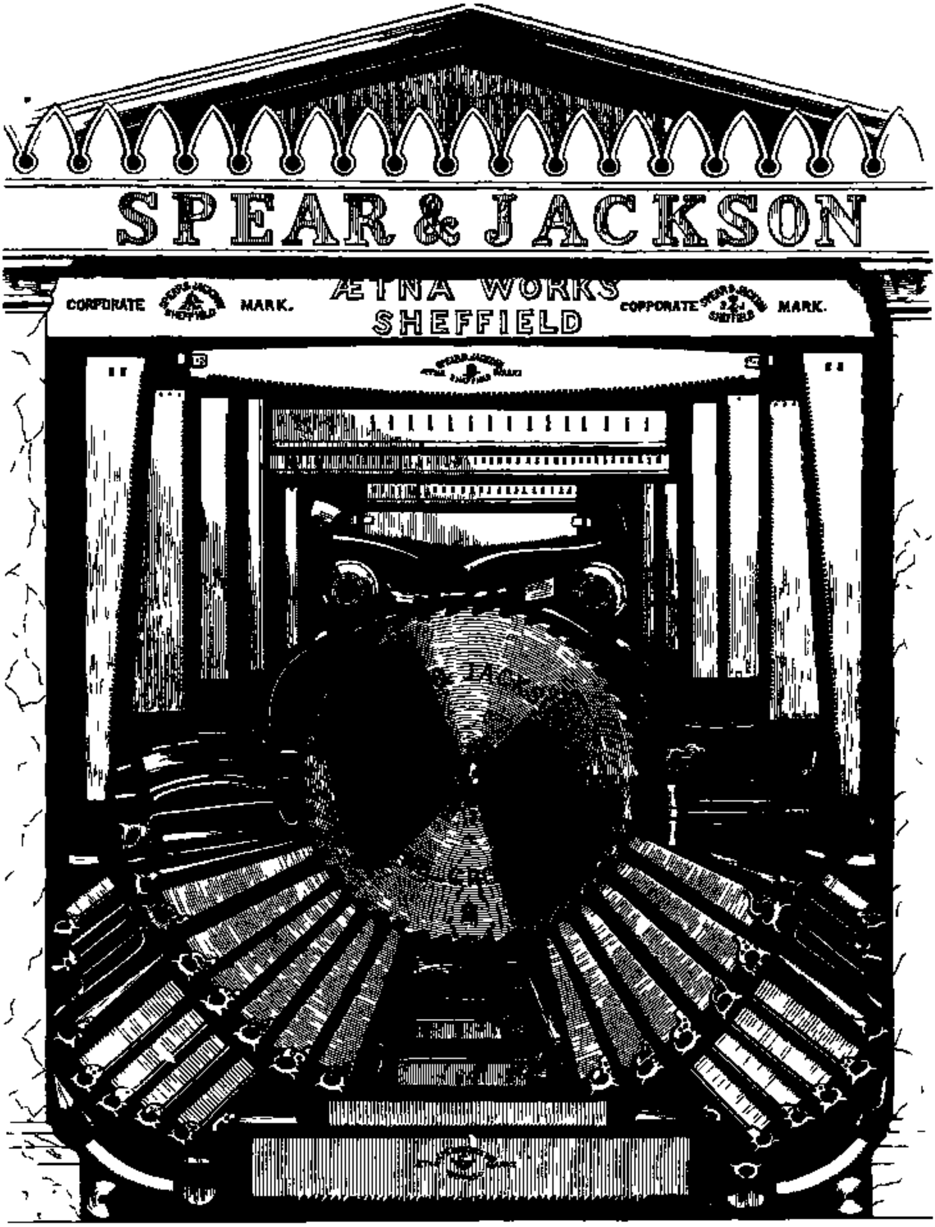
CL XXII 102.—PATENT REGISTER GRATE. STEWART AND SMITH, SHEFFIELD



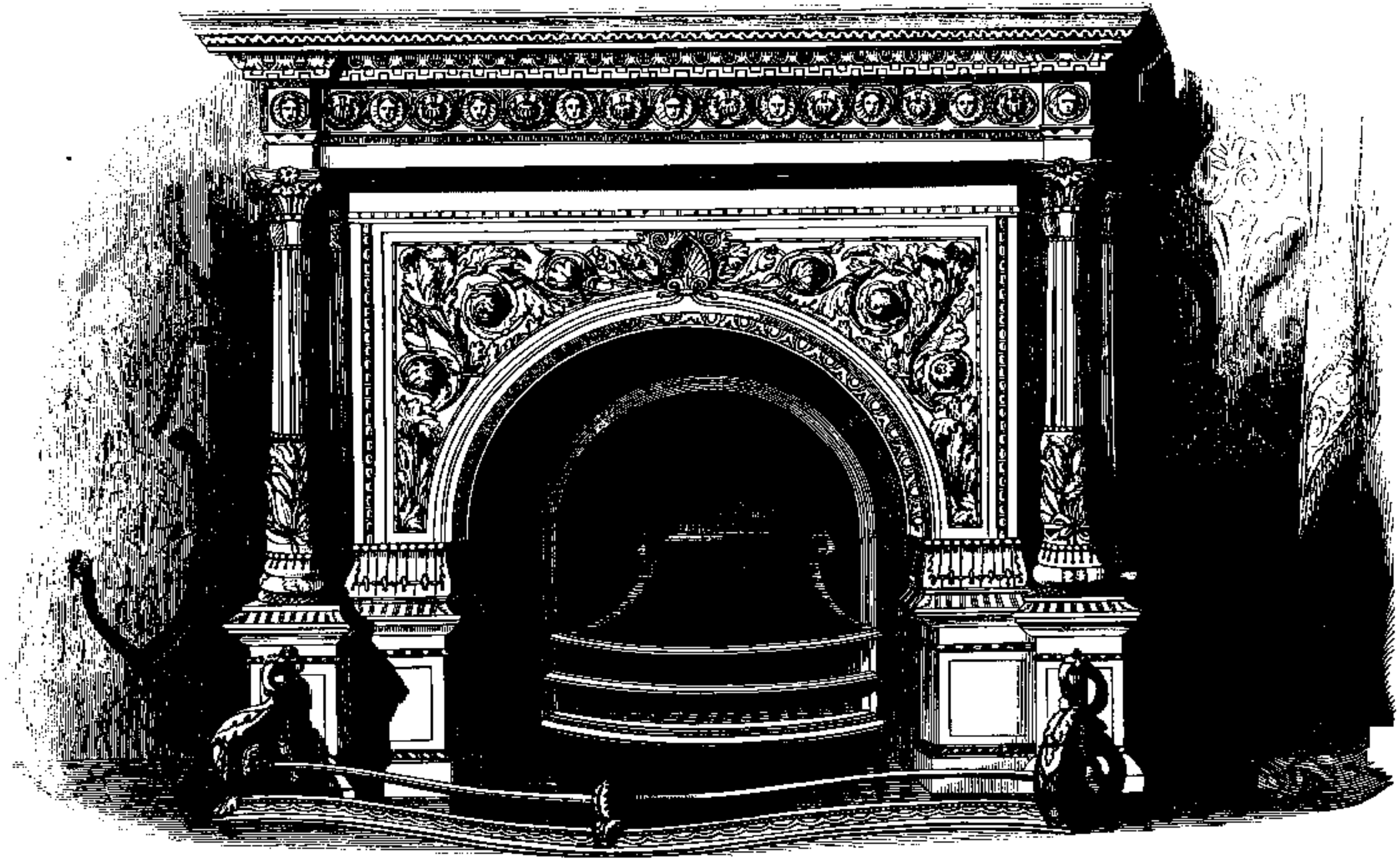
CL. XXII., 106.—PATENT BRIGHT STEEL REFLECTING STOVE-GRATE, WITH GILT ORNAMENTS, IN THE RENAISSANCE STYLE, MOVEABLE REFLECTOR, ETC.
MESSRS. JOBSON AND CO., DERBY.


MANUFACTURERS TO HER MAJESTY.
DIEU ET MON DROIT
JOHNSON GAMMELL & C°, CYCLOPS STEEL WORKS SHEFFIELD.

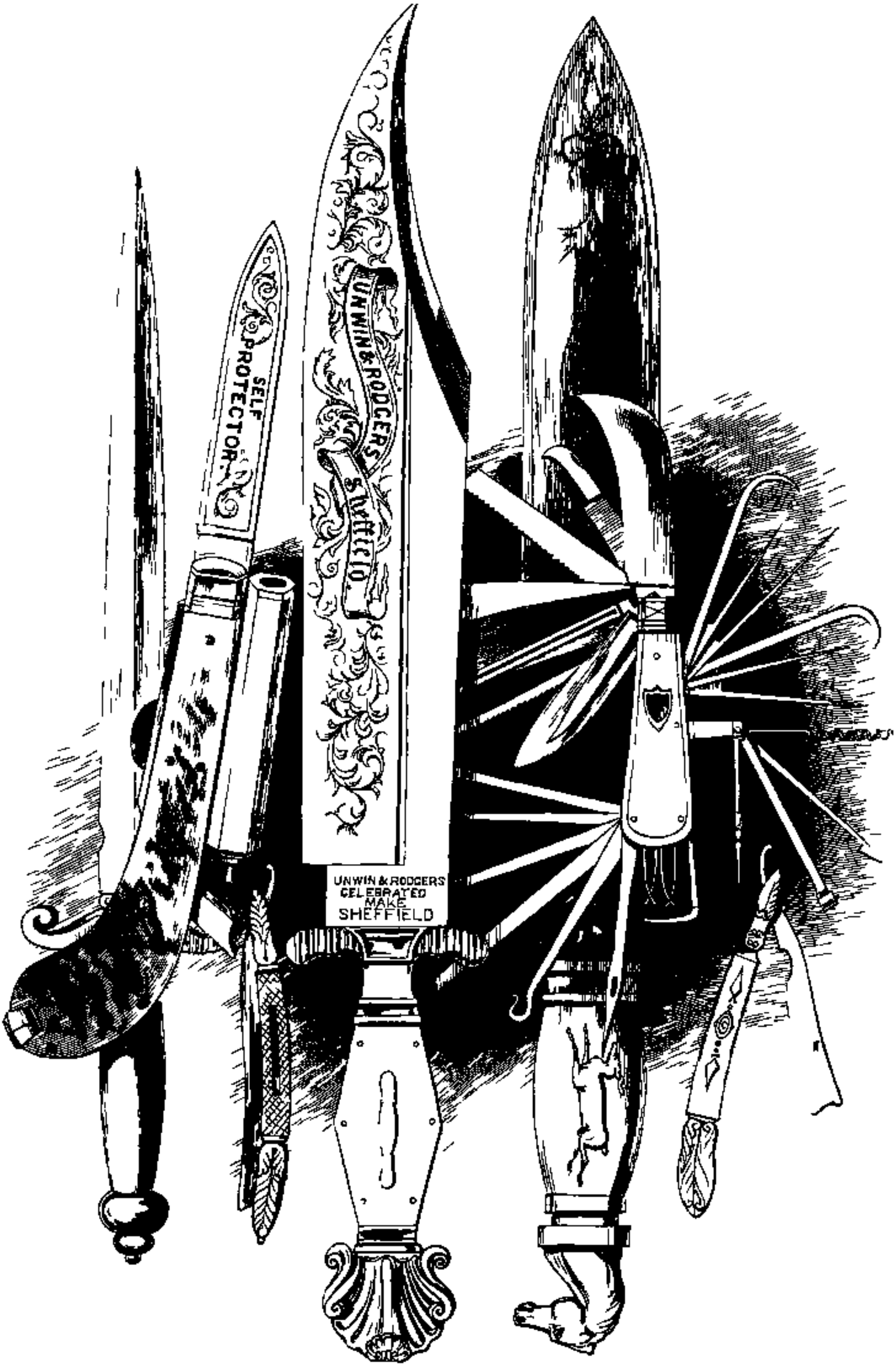
CL. XXII., 109. CASE OF RAILWAY CARRIAGE, VAN, AND OTHER SPRINGS, FILES, ETC.
JOHNSON, CAMMELL, AND CO., SHEFFIELD.


SPEAR & JACKSON
CORPORATE MARK.
ÆTNA WORKS SHEFFIELD
CORPORATE MARK.

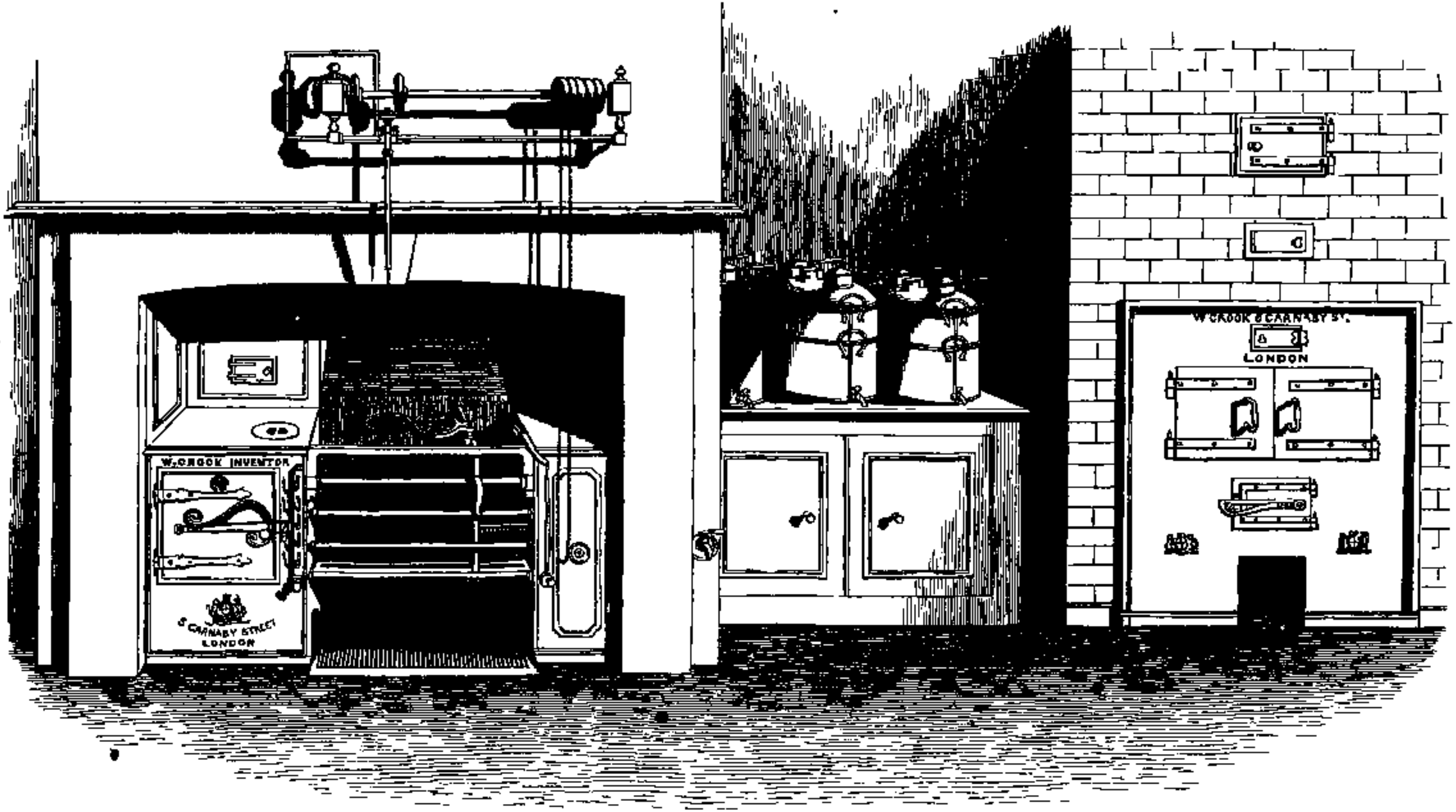
372. CL. XXII., 113.—CASE OF SAWS, AXES, ADZES, AUGERS, CHISELS, KNIVES, ETC.
SPEAR AND JACKSON, ÆTNA WORKS, SHEFFIELD.



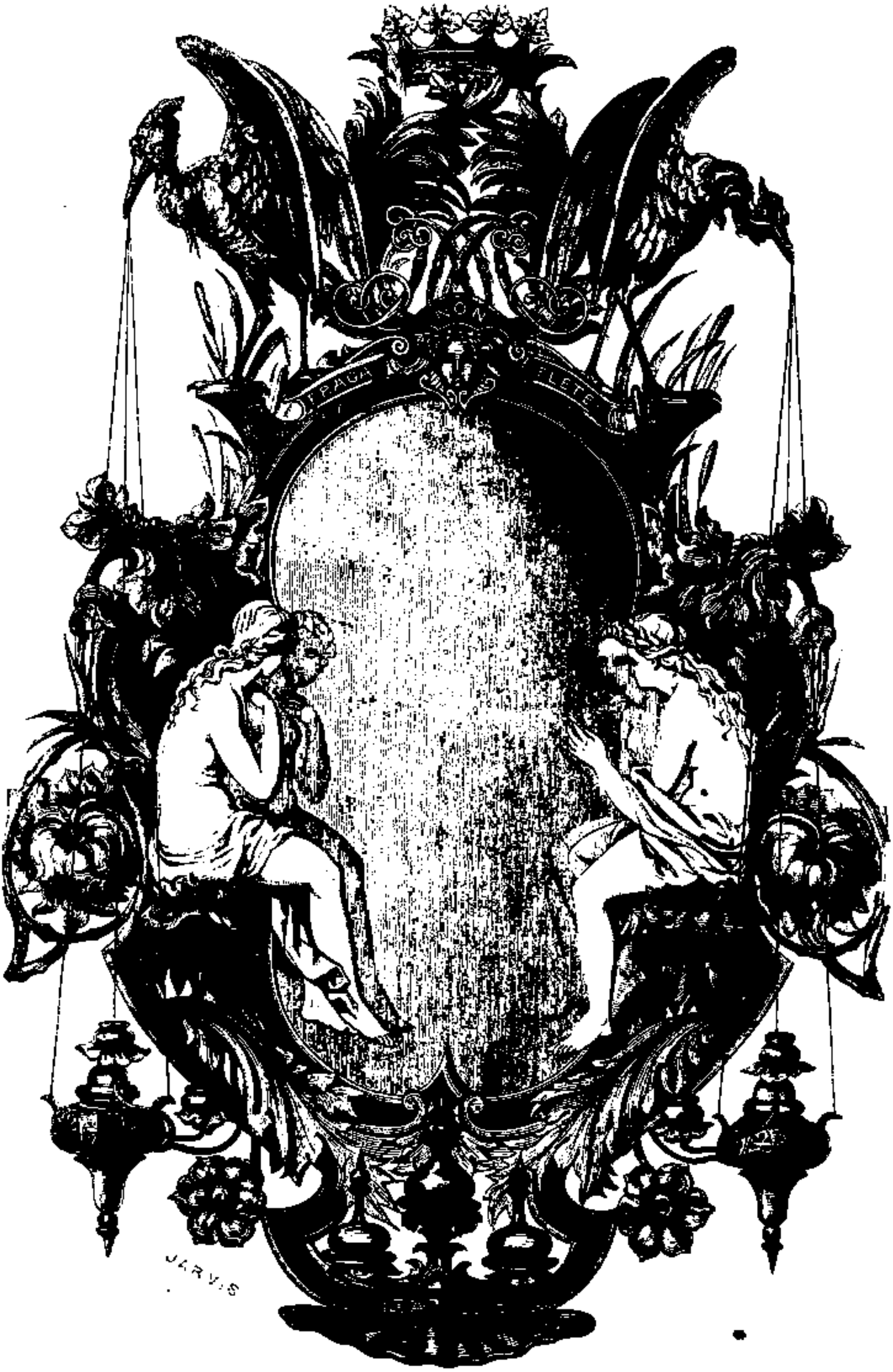
352. CL. XXII., 140. DRAWING-ROOM MANTELPIECE, IN OR-MOLU AND CLEANED IRON; REGISTER STOVE IN OR-MOLU AND BURNISHED STEEL; AND FENDER, IN OR-MOLU AND BURNISHED STEEL. HOOLE, ROBSON, AND HOOLE, SHEFFIELD.



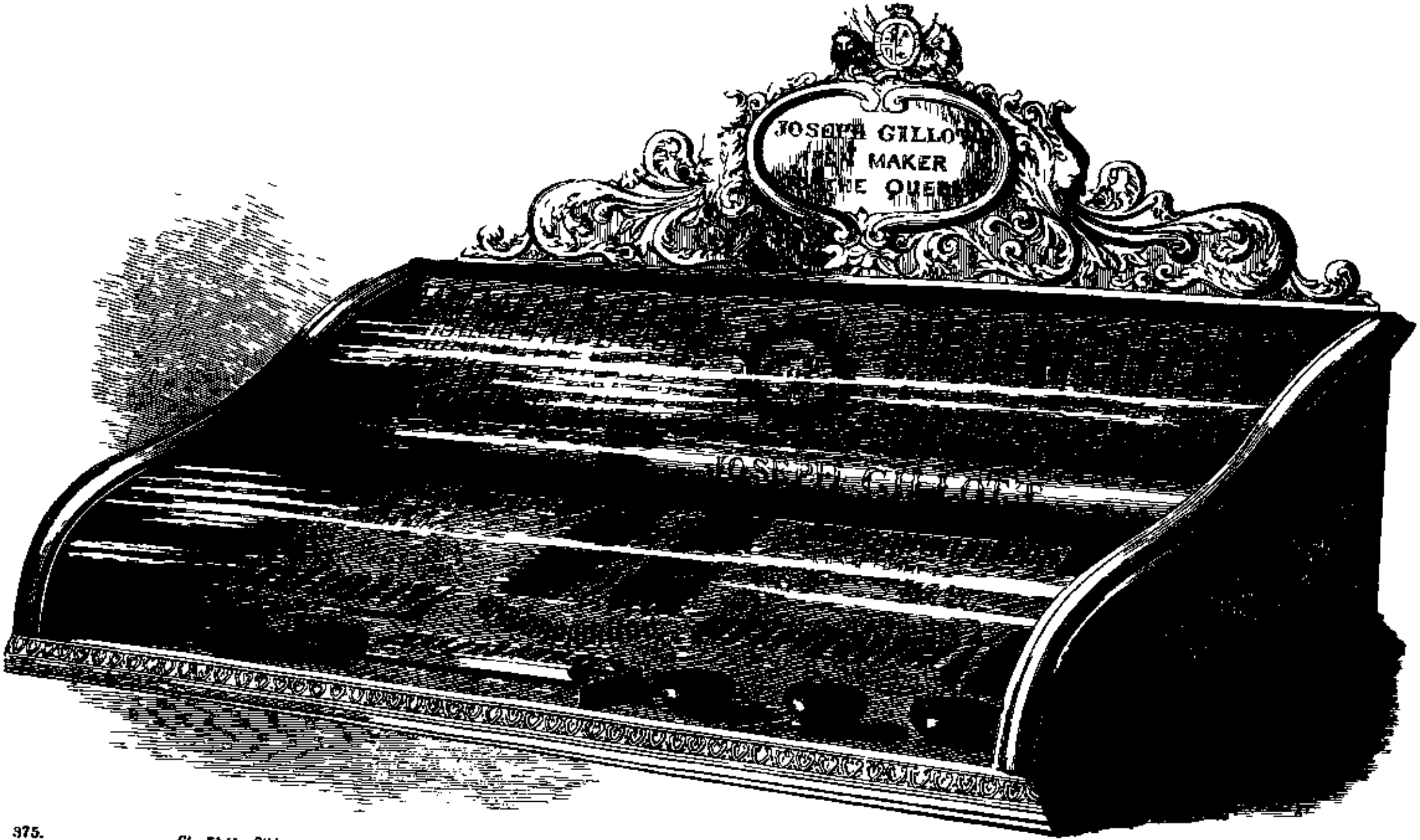
CL. XXII, 159.—SPECIMENS OF BOWIE KNIVES, PISTOL KNIVES, AND RAZORS
UNWIN AND RODGERS, SHEFFIELD



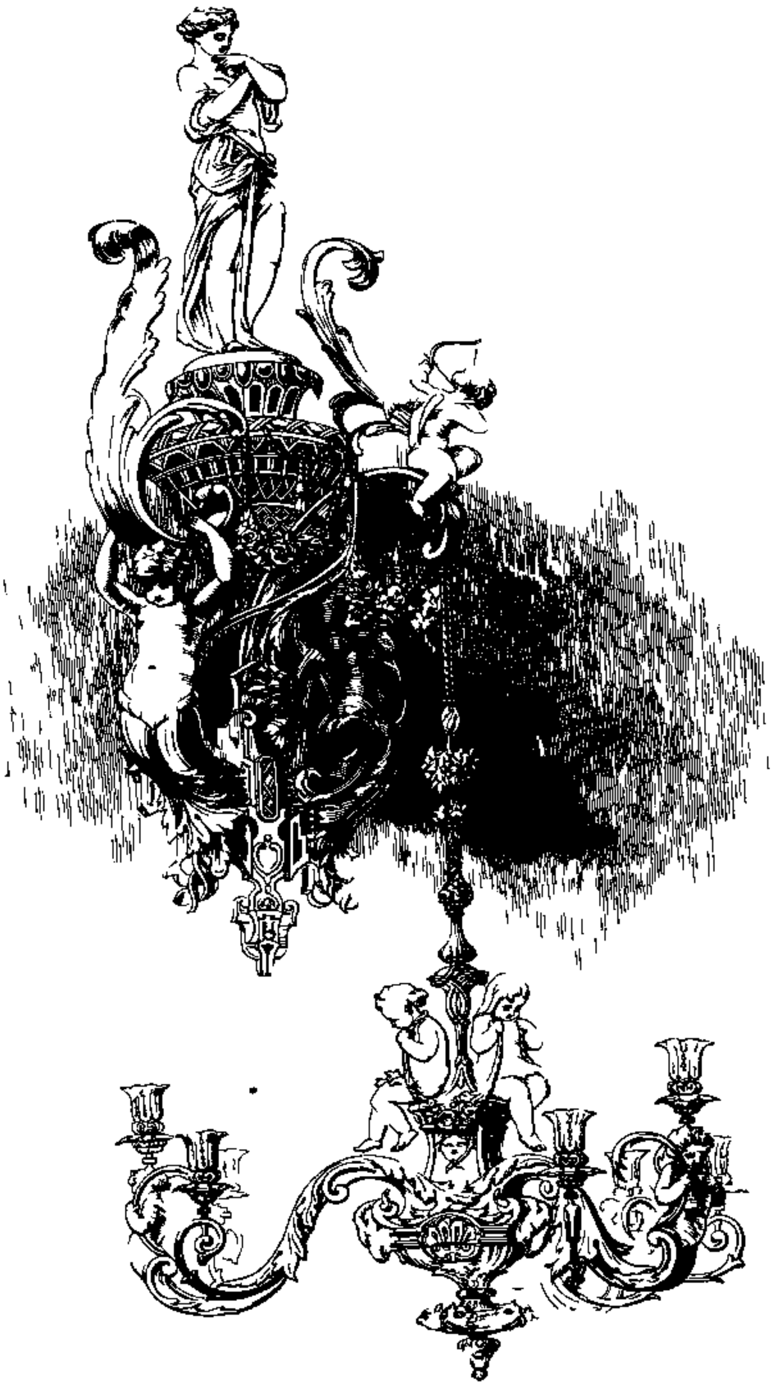
CL. XXII., 244.—HOT-PLATE OVEN AND BOILER; KITCHEN-RANGE, WITH IMPROVED SMOKE-JACK AND SPIT; TAILOR'S STOVE.
W. CROOK, CARNABY STREET, GOLDEN SQUARE.



CL. XXII., 323.—GRAND BOUDOIR-GLASS, BRONZED FRAME. W. POTTS, BIRMINGHAM.



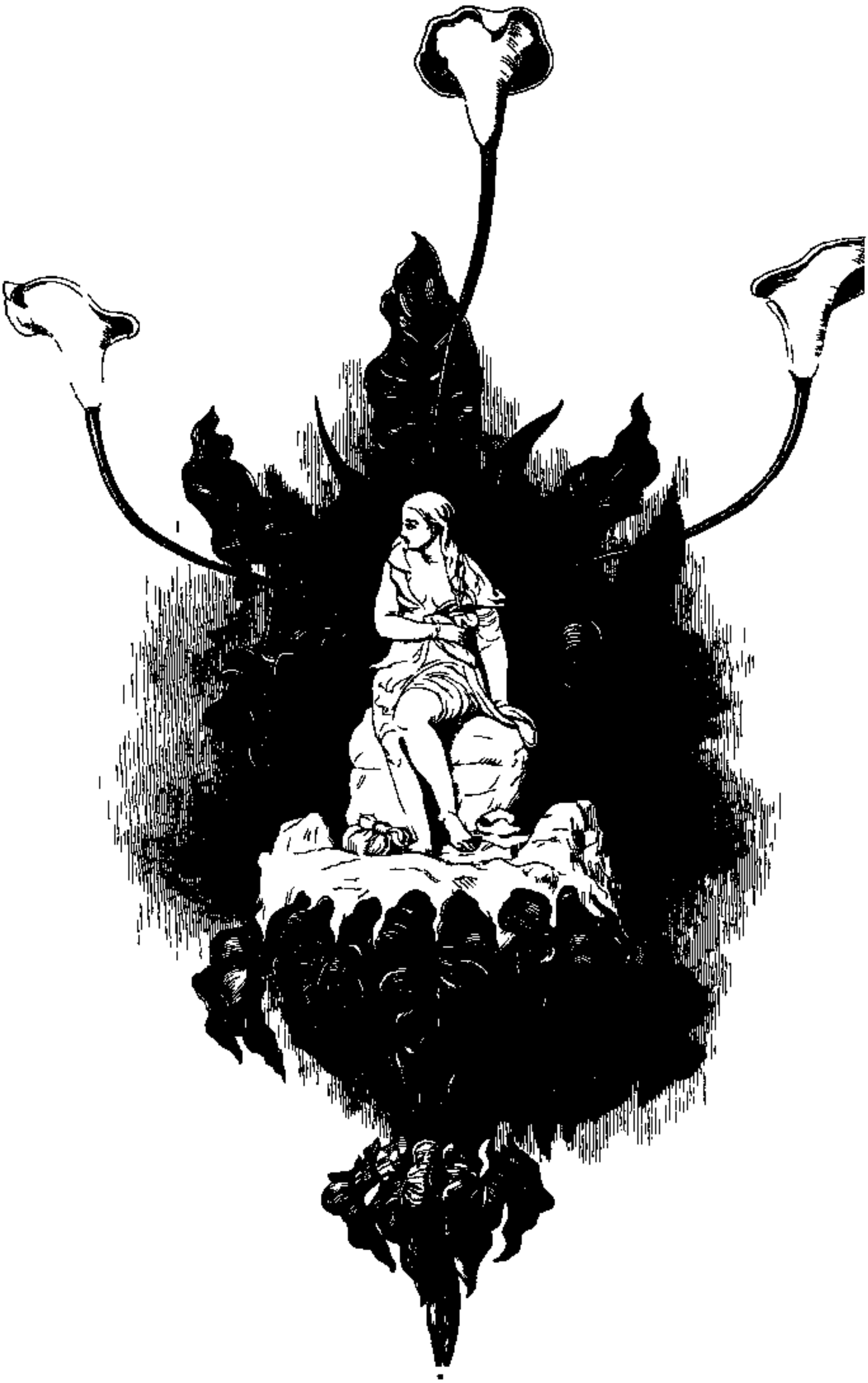
CL. XXII., 324.—CASE OF STEEL PENS, OF VARIOUS SHAPES, SIZES, AND PATTERNS. JOSEPH GILLOTT, VICTORIA WORKS, BIRMINGHAM



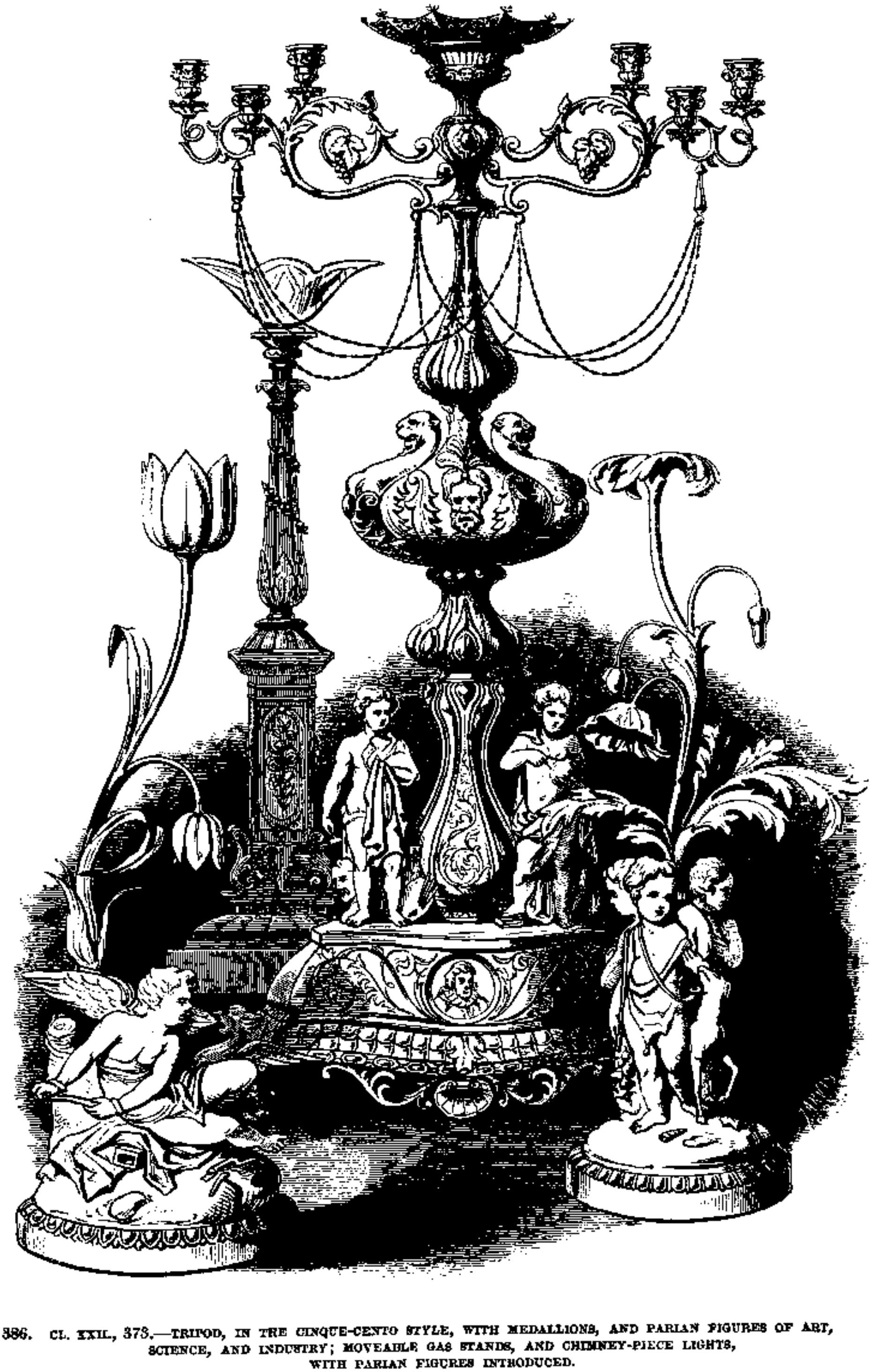
CLASS XXII, 373.—CHANDELIER, IN THE CINQUE CENTO STYLE, SUSPENDED FROM A BRACKET, SUPPORTED BY TWO FIGURES, AND SURMOUNTED BY A CUPID AND A FIGURE OF INNOCENCE

PURCHASED BY HER MAJESTY THE QUEEN

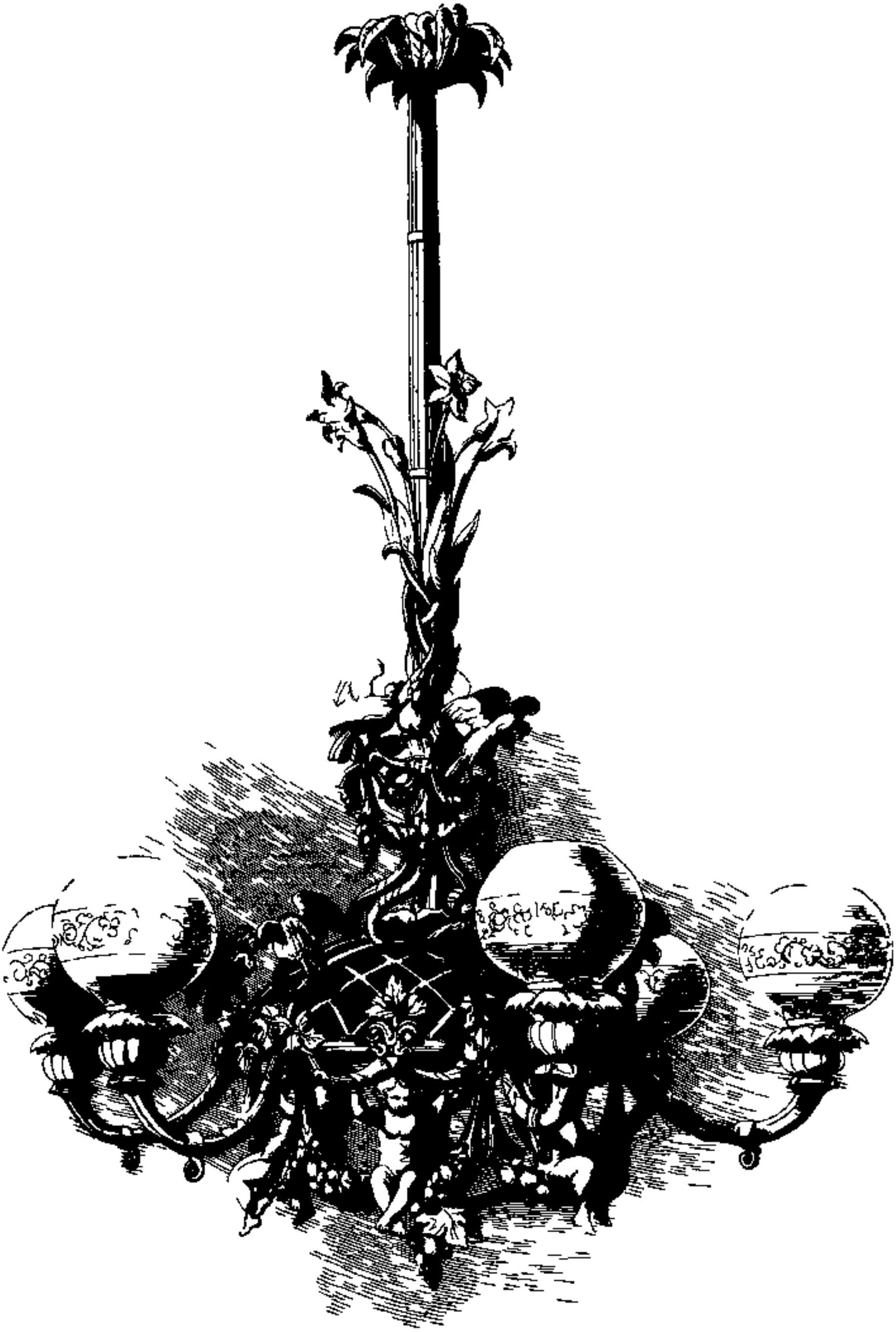
R. W. WINFIELD, CAMBRIDGE STREET WORKS, BIRMINGHAM



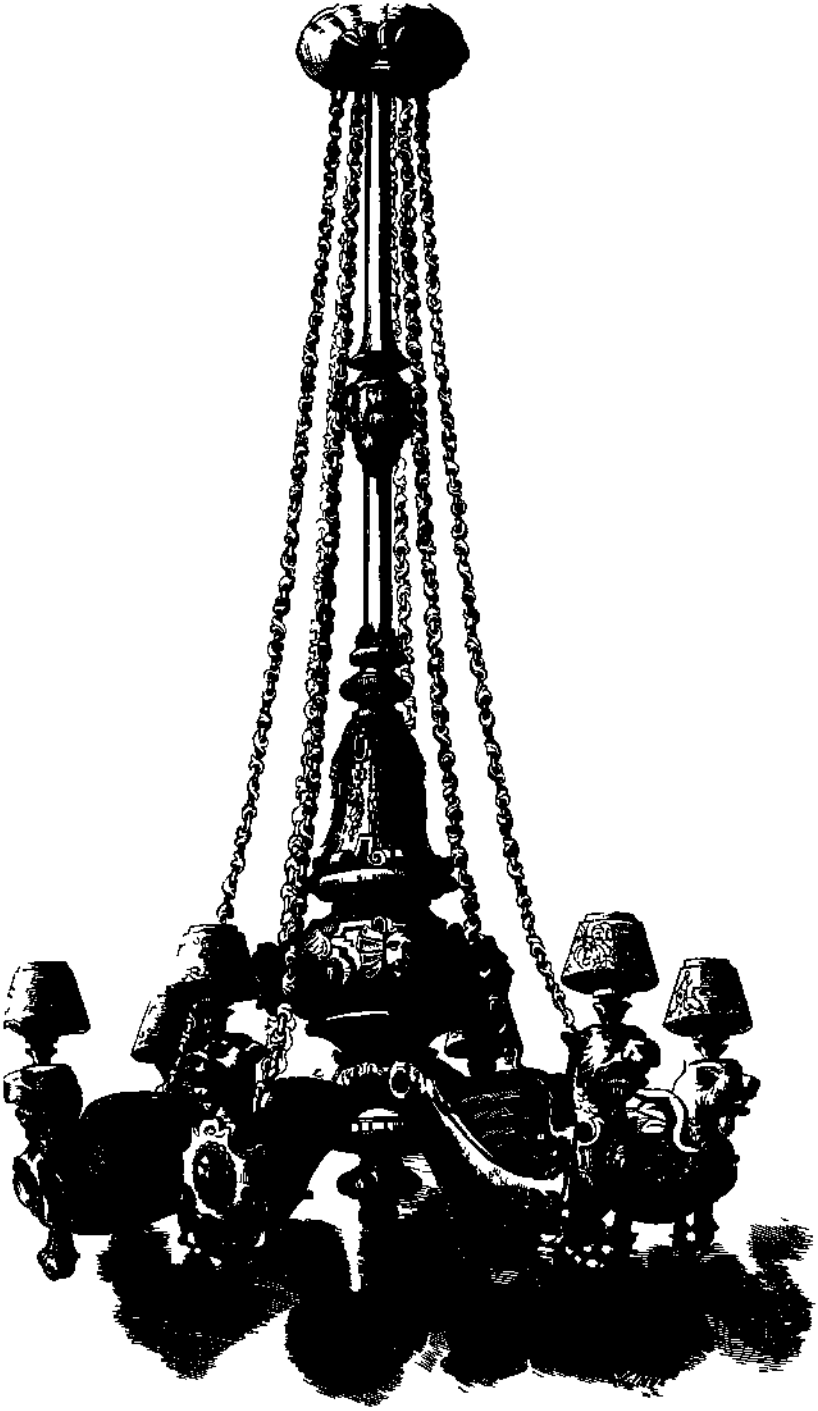
381 CLASS XXII., 373.—DOROTHEA LILY BRACKET, WITH PARIAN FLOWERS AND STATUETTES, FITTED FOR GAS
PURCHASED BY HER MAJESTY THE QUEEN FOR THE PRINCE OF PRUSSIA



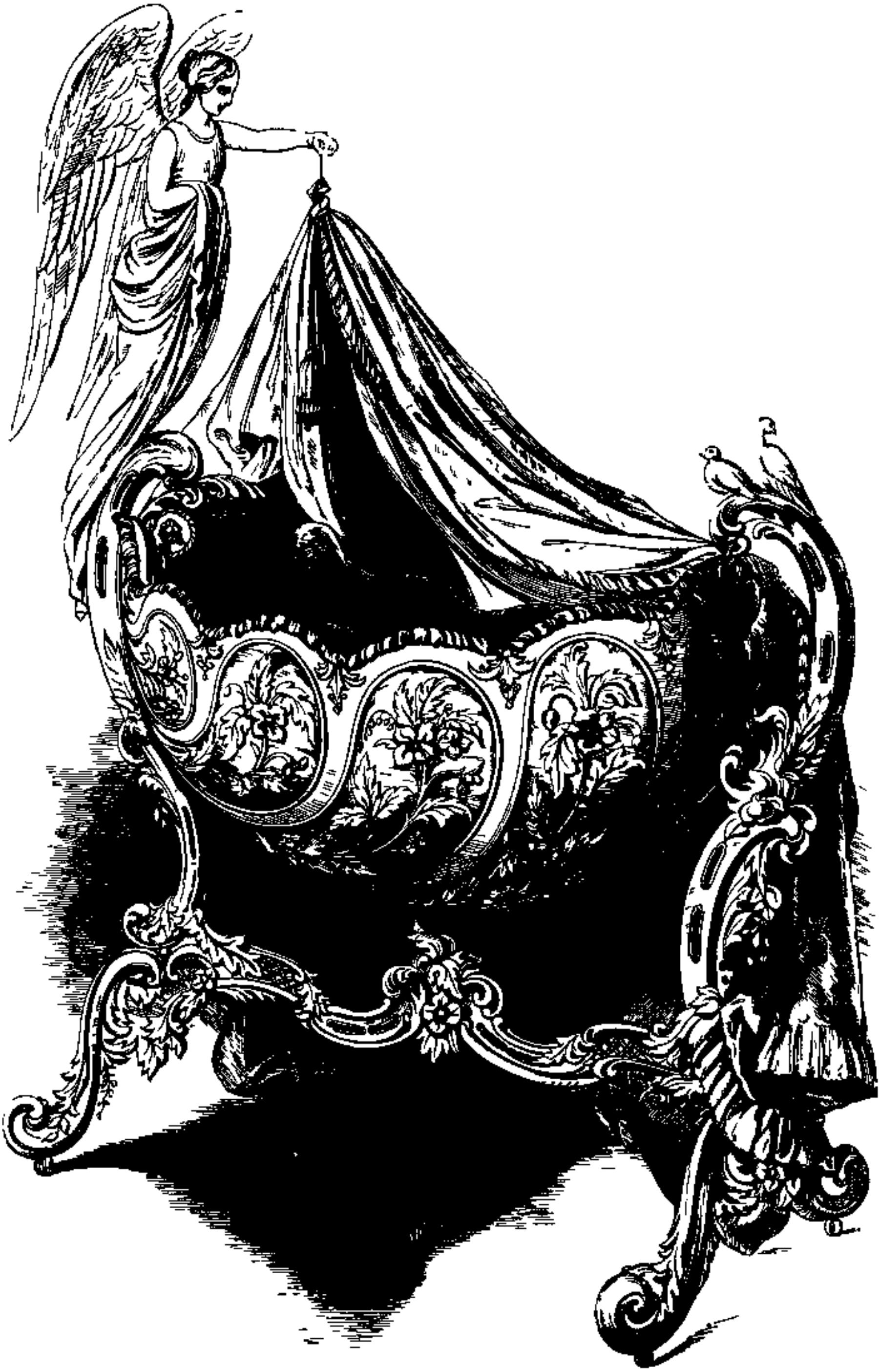
386. CL. XXII., 373.—TRIPOD, IN THE CINQUE-CENTO STYLE, WITH MEDALLIONS, AND PARIAN FIGURES OF ART,
SCIENCE, AND INDUSTRY; MOVEABLE GAS STANDS, AND CHIMNEY-PIECE LIGHTS,
WITH PARIAN FIGURES INTRODUCED.
R. W. WINFIELD, CAMBRIDGE-STREET WORKS, BIRMINGHAM.



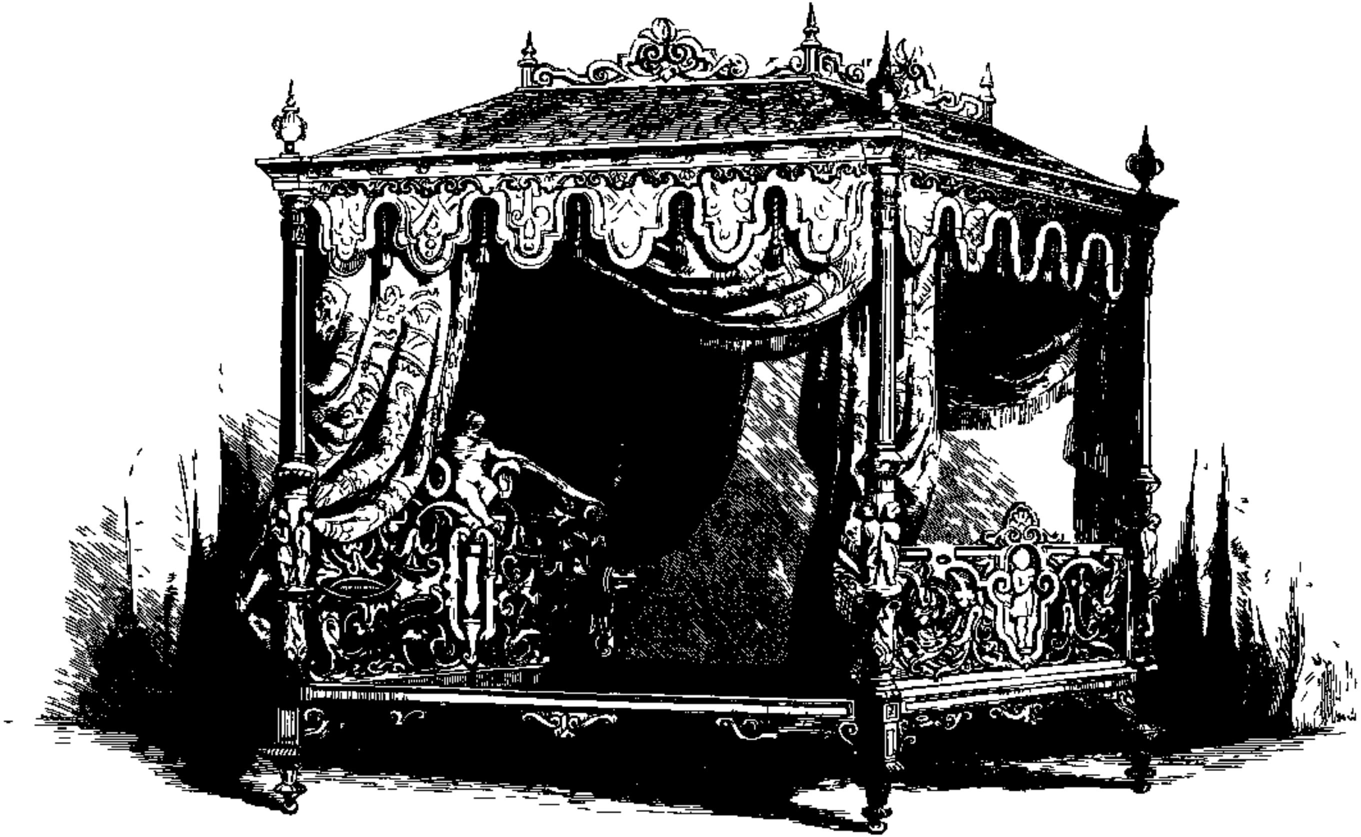
5 CLASS XXII., 373.—OR MOLU CHANDELIER, WITH BASKET-WORK, FOLIAGE, BIRDS, AND FIGURES INTRODUCED.
R. W. WINFIELD, CAMBRIDGE STREET WORKS, BIRMINGHAM.



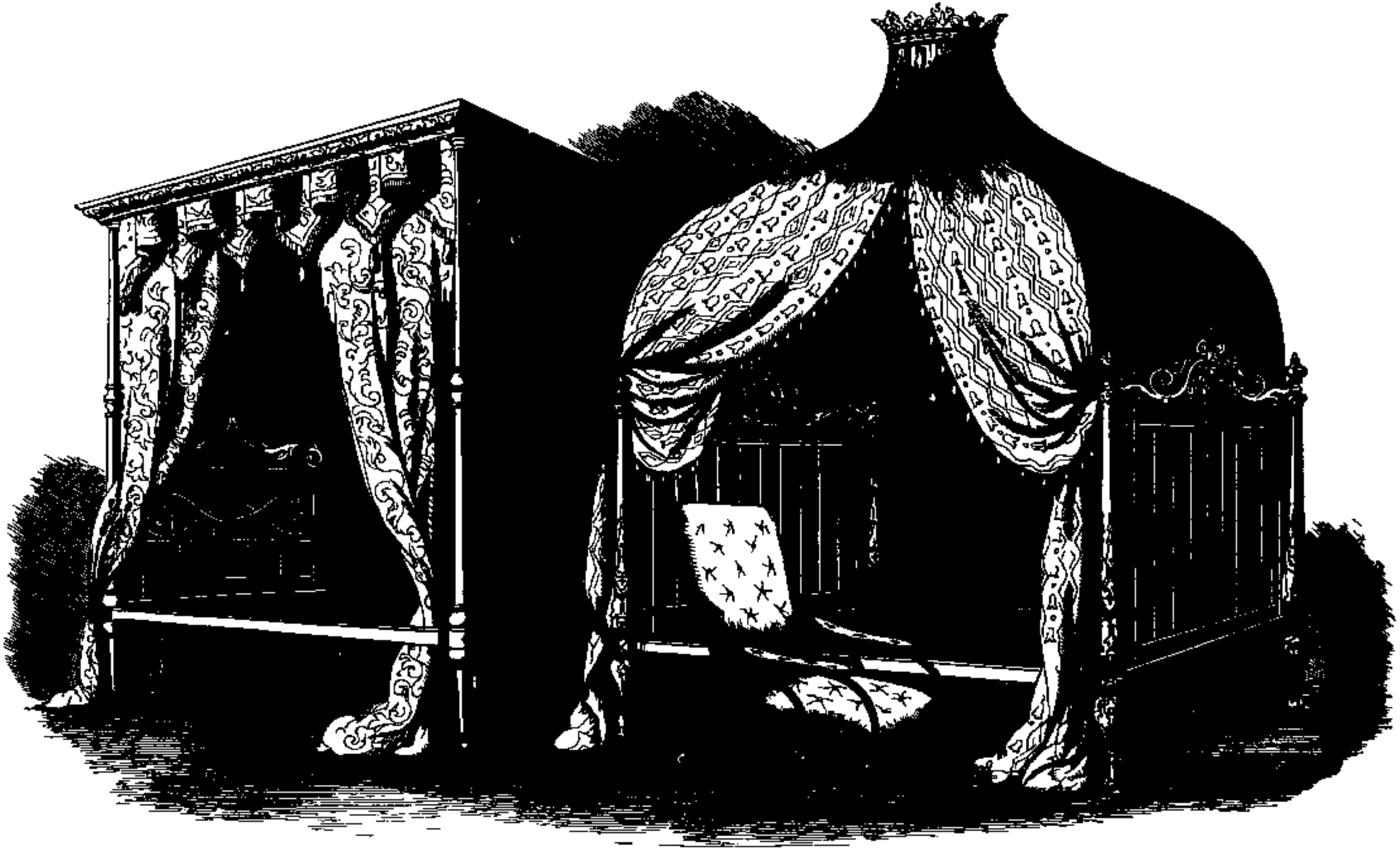
384. CLASS XXII., 373—ELIZABETHAN CHANDELIER, IN BRONZE, WITH ORNAMENTAL ENAMELLED SHADES
R. W. WINFIELD, CAMBRIDGE STREET WORKS, BIRMINGHAM



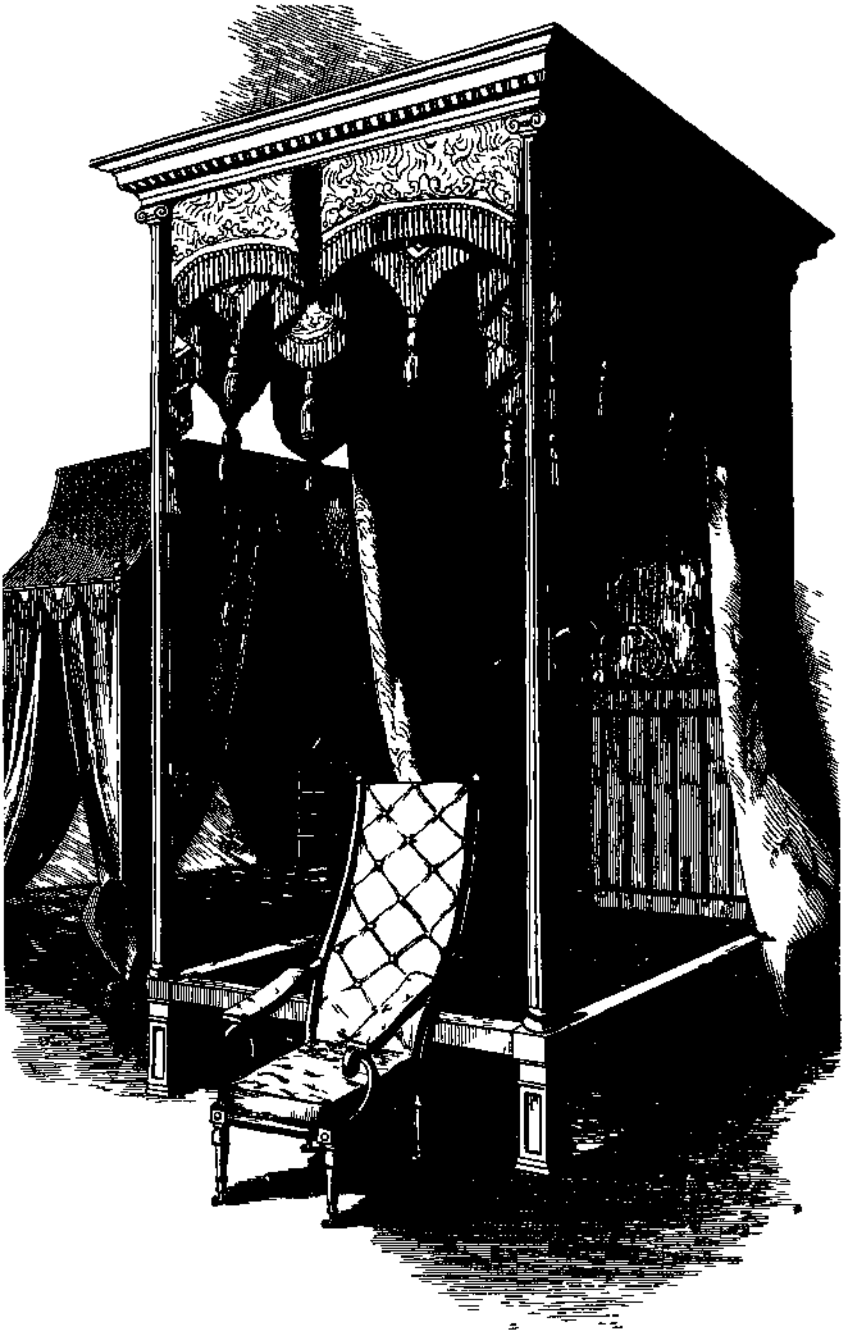
CLASS XXII, 373.—CHILD'S ORNAMENTAL COT IN CAST BRASS, WITH FIGURE OF ANGEL INTRODUCED AT THE HEAD TO SUPPORT THE DRAPERY.
R. W. WINFIELD, CAMBRIDGE-STREET WORKS, BIRMINGHAM.



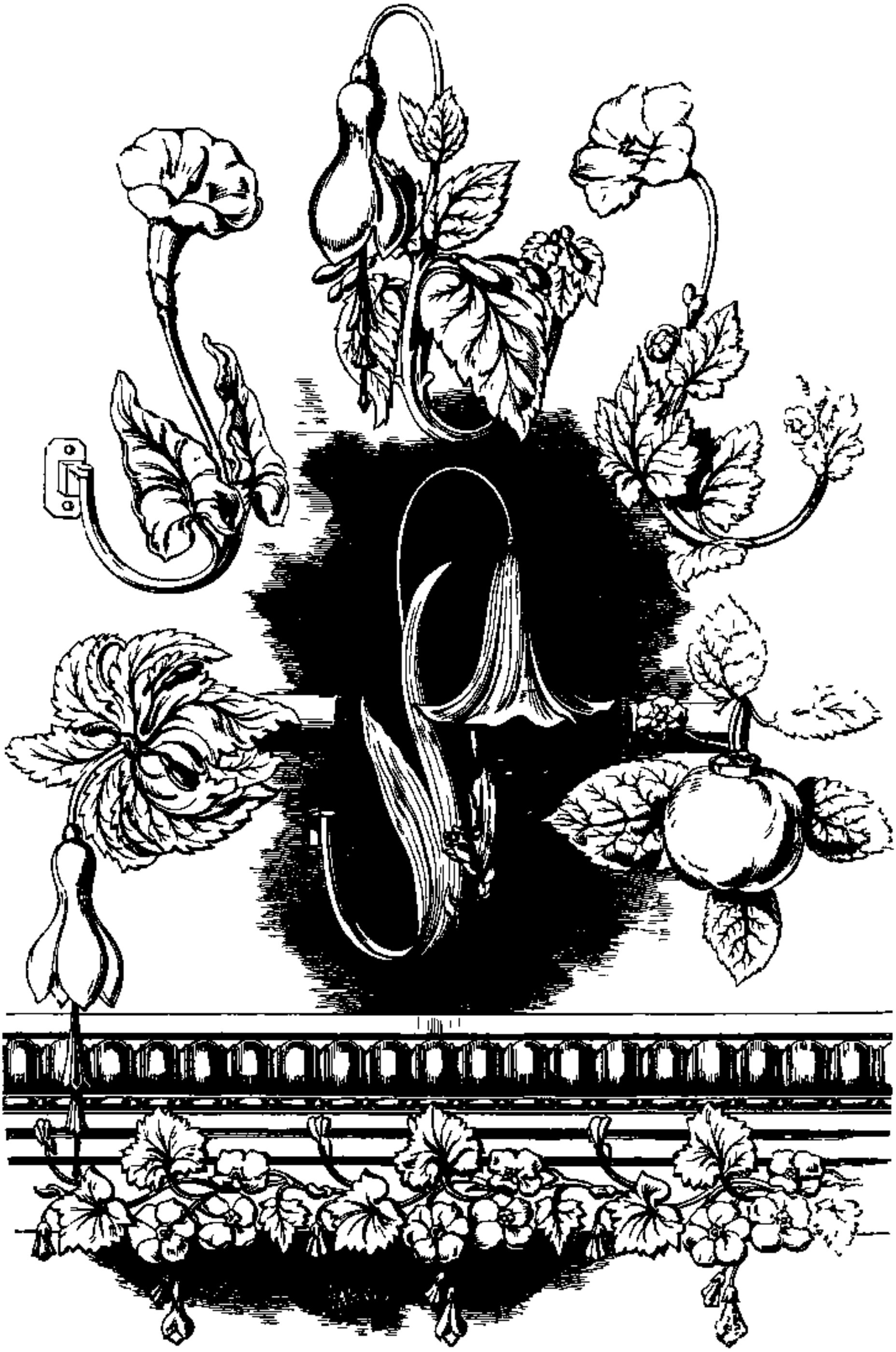
CL. XXII., 373. – BRASS FOUR-POST BEDSTEAD, IN THE RENAISSANCE STYLE, CLOTHED IN GREEN SILK DAMASK
R. W. WINFIELD, CAMBRIDGE-STREET WORKS, BIRMINGHAM.



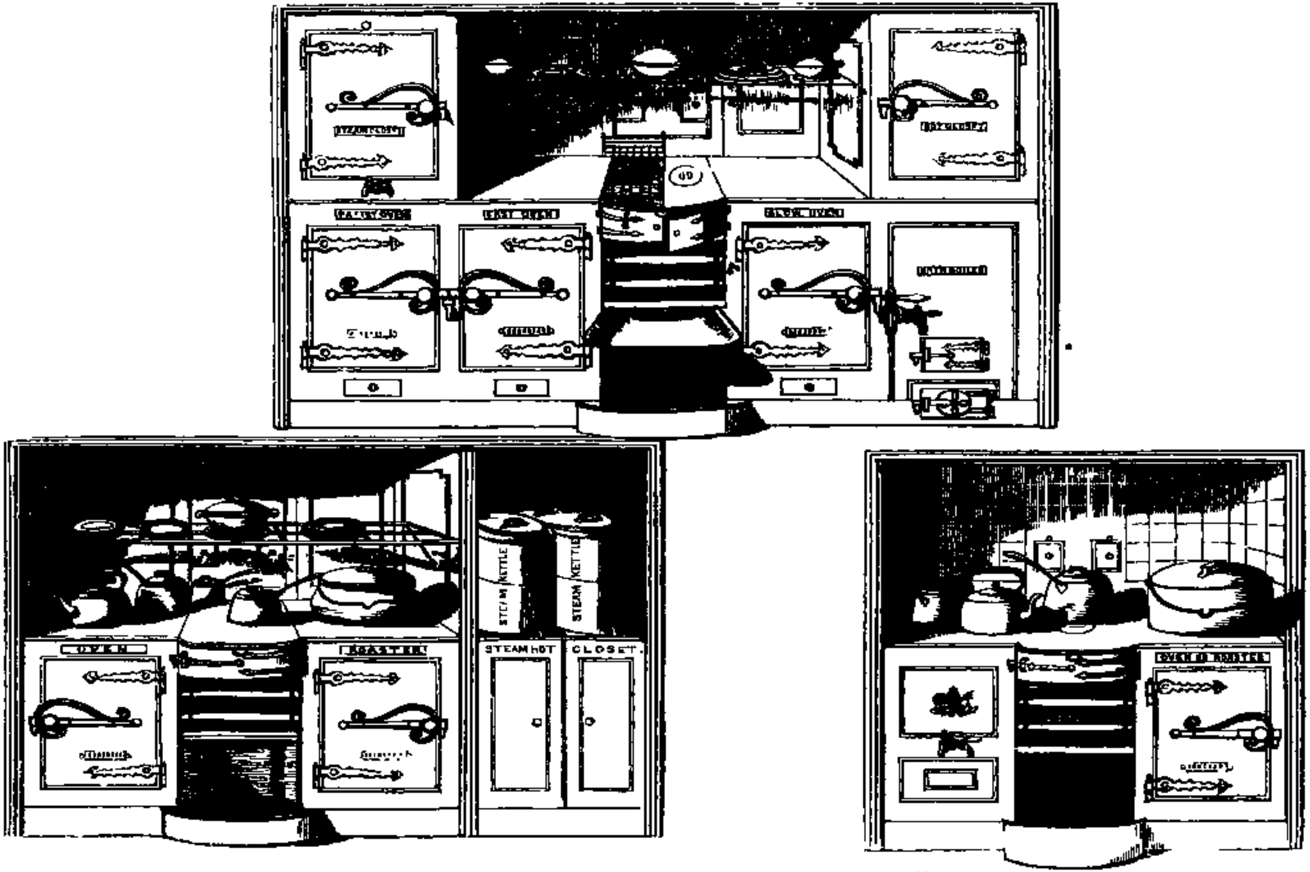
CLASS XXII., 573.—BRASS BEDSTEAD, IN THE ELIZABETHAN STYLE, AND JAPANNED IRON TENT SQUARE TOP BEDSTEAD
ROCKING OR LOUNGING CHAIR, FORMED OF TUBE
R. W. WINFIELD, CAMBRIDGE STREET WORKS, BIRMINGHAM



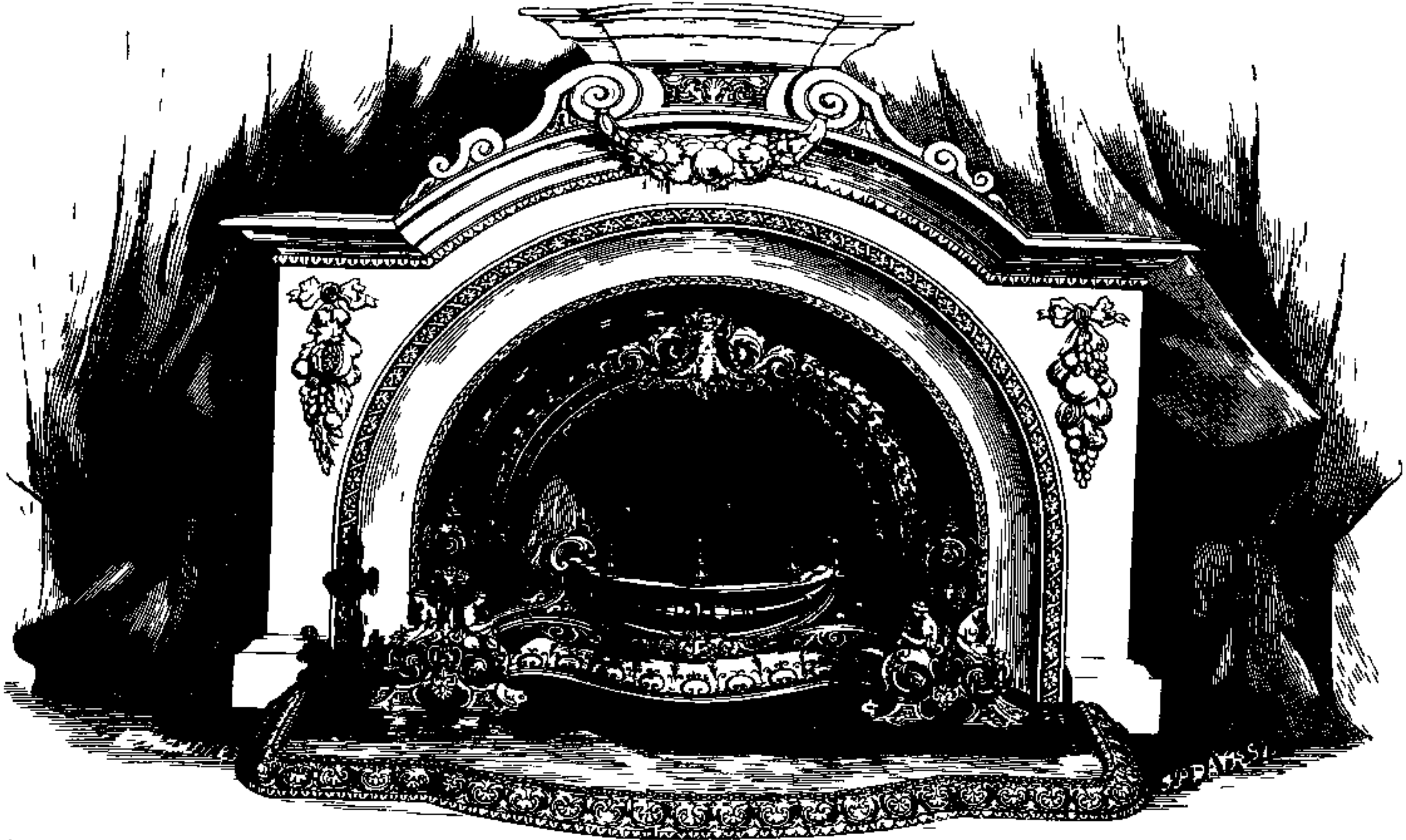
CLASS XXII., 373.—BRASS BEDSTEAD IN THE IONIC STYLE, PORTABLE BEDSTEAD FOR TRAVELLING, AND ARM-CHAIR. R. W. WINFIELD, CAMBRIDGE-STREET WORKS, BIRMINGHAM.



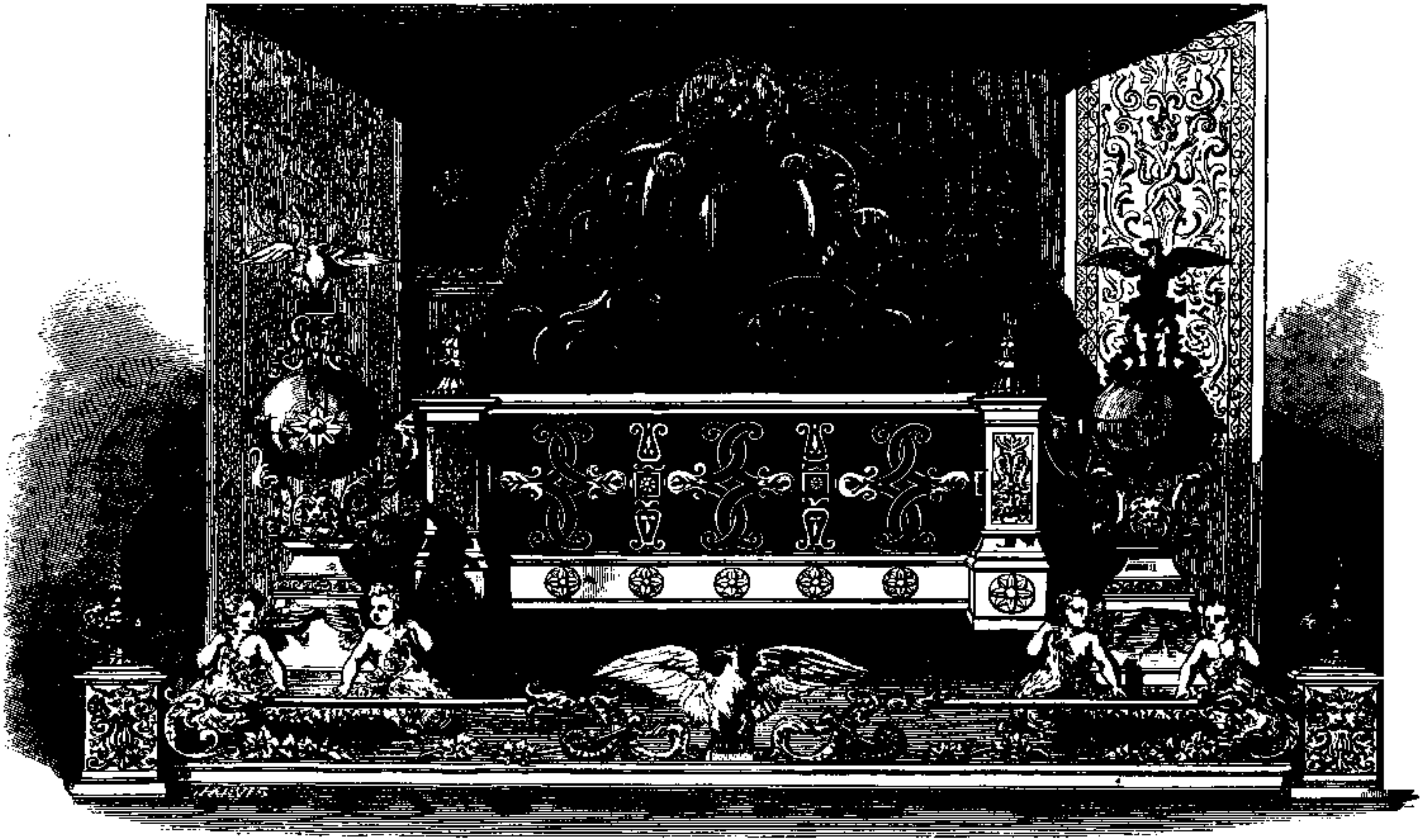
CLASS XXII., 373.—GROUP OF CURTAIN-BANDS, CURTAIN HOLDERS, CORNICE-ENDS, AND CORNICE, IN STAMPED BRASS, WITH GLASS ORNAMENTS, REPRESENTING LILIES, FUCHSIAS, AND MALLOWS.
R. W. WINFIELD, CAMBRIDGE STREET WORKS, BIRMINGHAM.



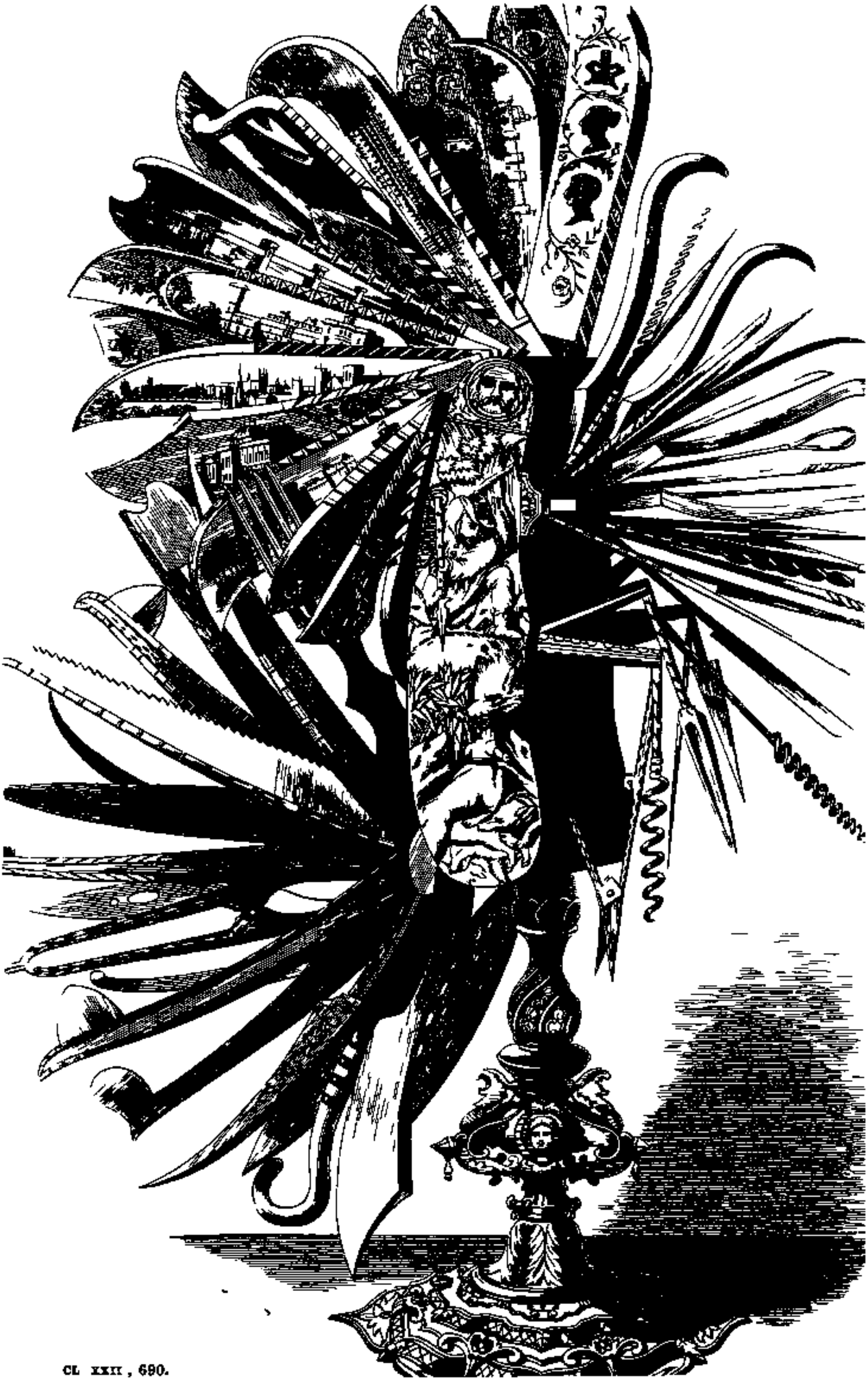
CL. XXII., 380.—PATENT ECONOMIC COOKING APPARATUS, WITH OVENS, BOILER, HOT-PLATE AND CLOSETS, STEAM KETTLES, ETC H GODDARD, NOTTINGHAM.



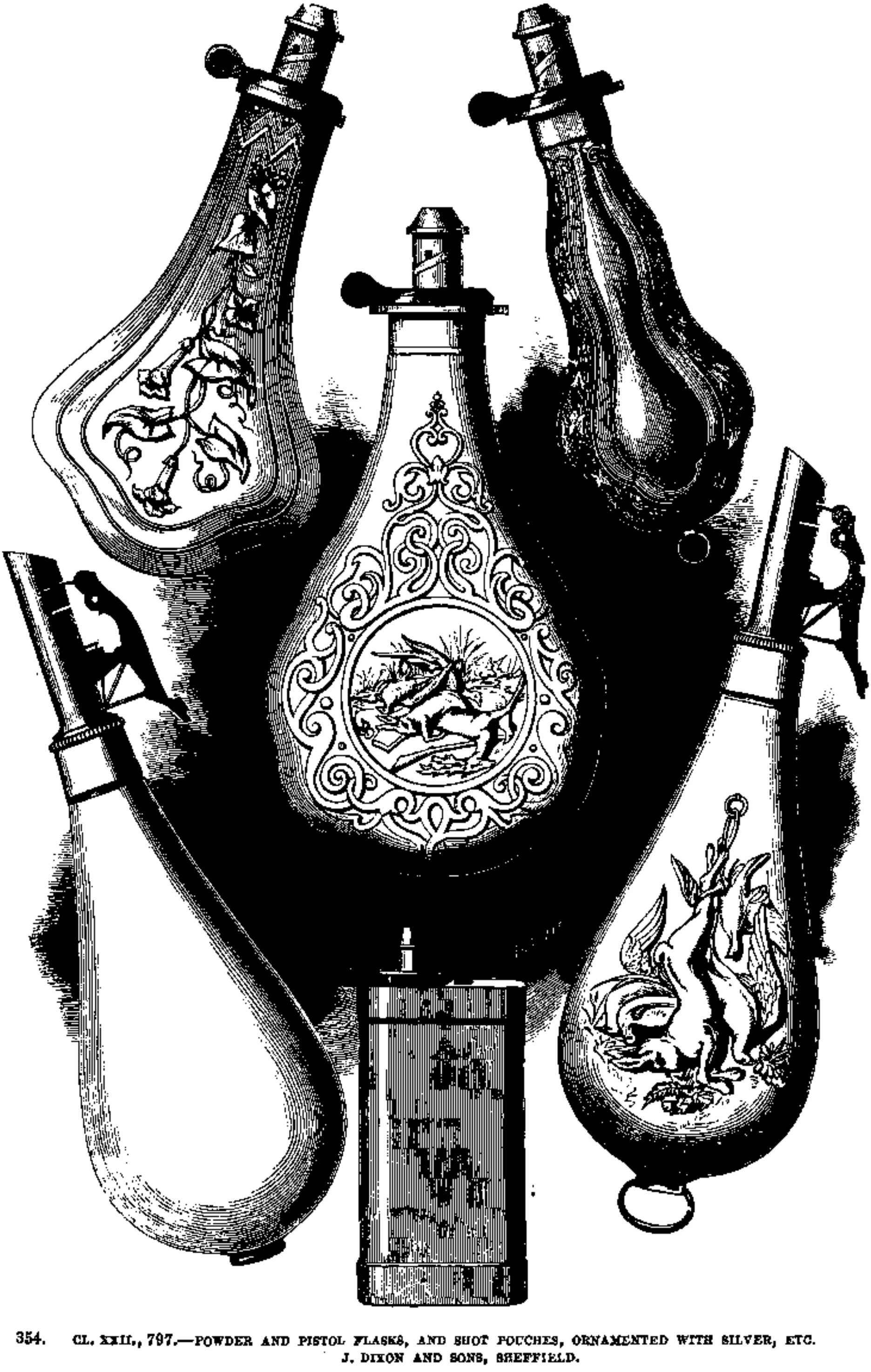
CL. XXII., 384.—DRAWING ROOM REGISTER STOVE GRATE, AND FENDER, IN OR MOLU AND BURNISHED STEEL, WITH MARBLE MANTELPIECE. YATES, HAYWOOD, AND CO., ROTHERHAM, YORKSHIRE, AND UPPER THAMES STREET.



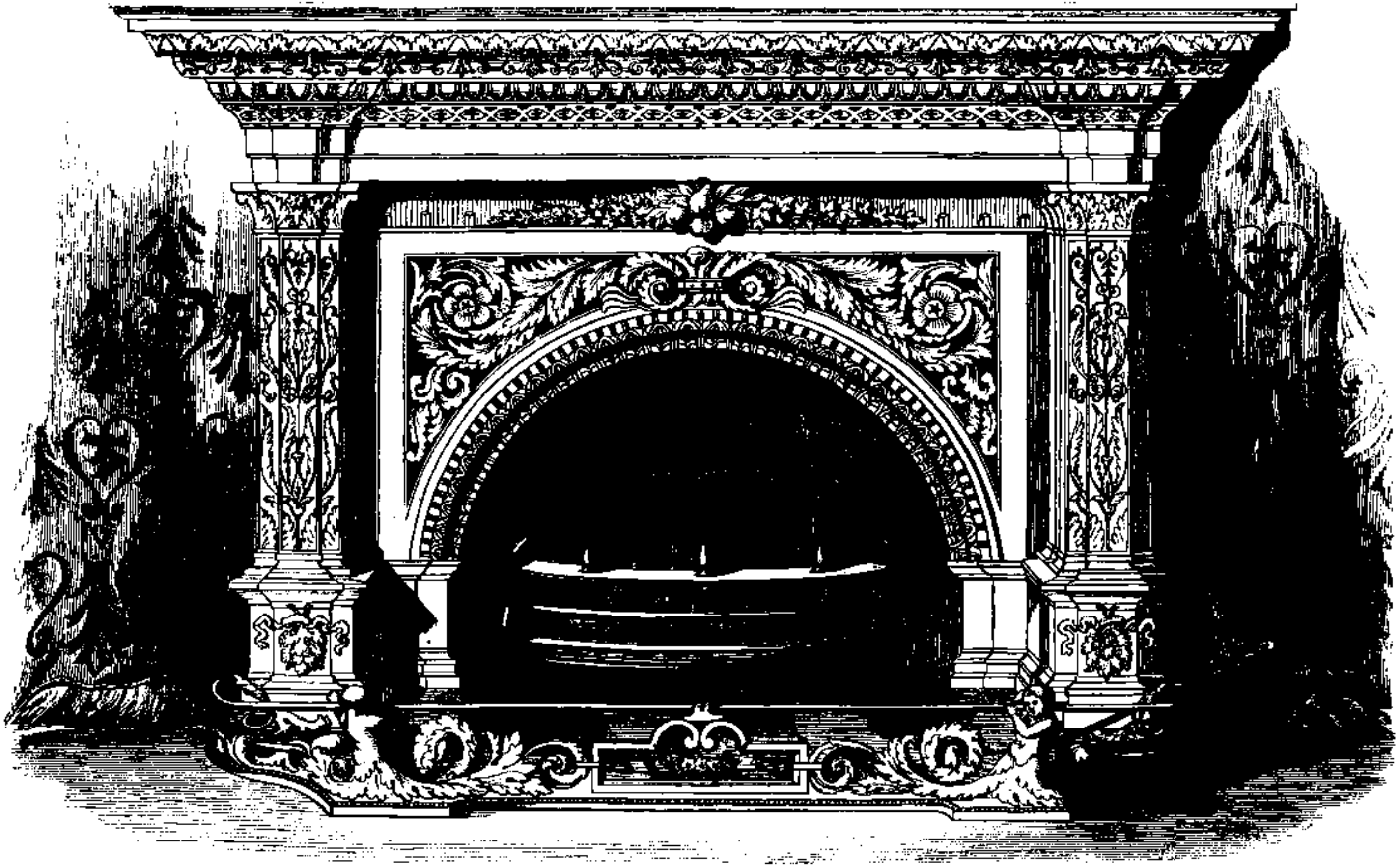
CL. XXII. 686.—POLISHED STEEL STOVE, WITH OR-MOLU MOUNTINGS. FEATHAMS, MILLER, AND CO., 9, CLIFFORD STREET, BOND STREET.



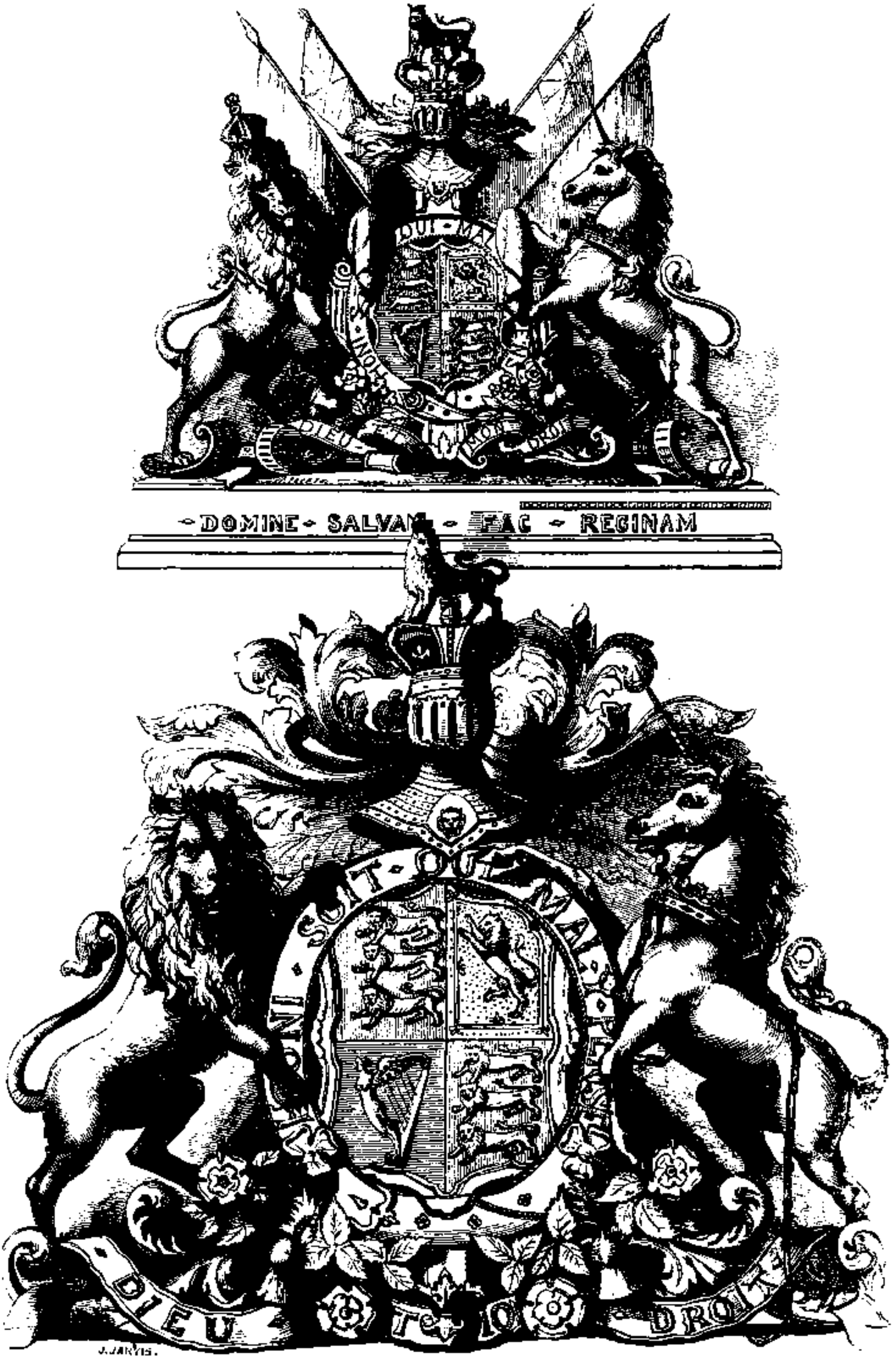
CL XXII, 690.



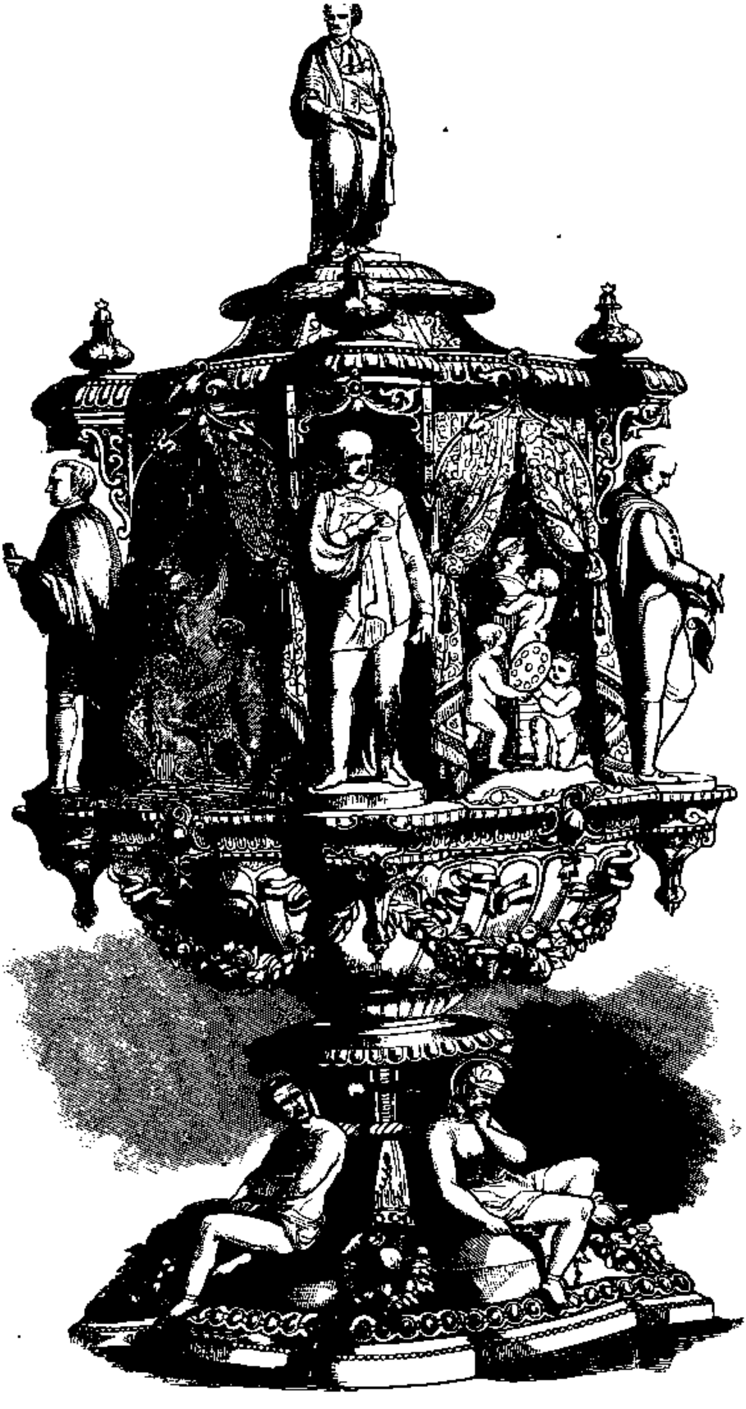
354. CL. XXII., 797.—POWDER AND PISTOL FLASKS, AND SHOT POUCHES, ORNAMENTED WITH SILVER, ETC.
J. DIXON AND SONS, SHEFFIELD.



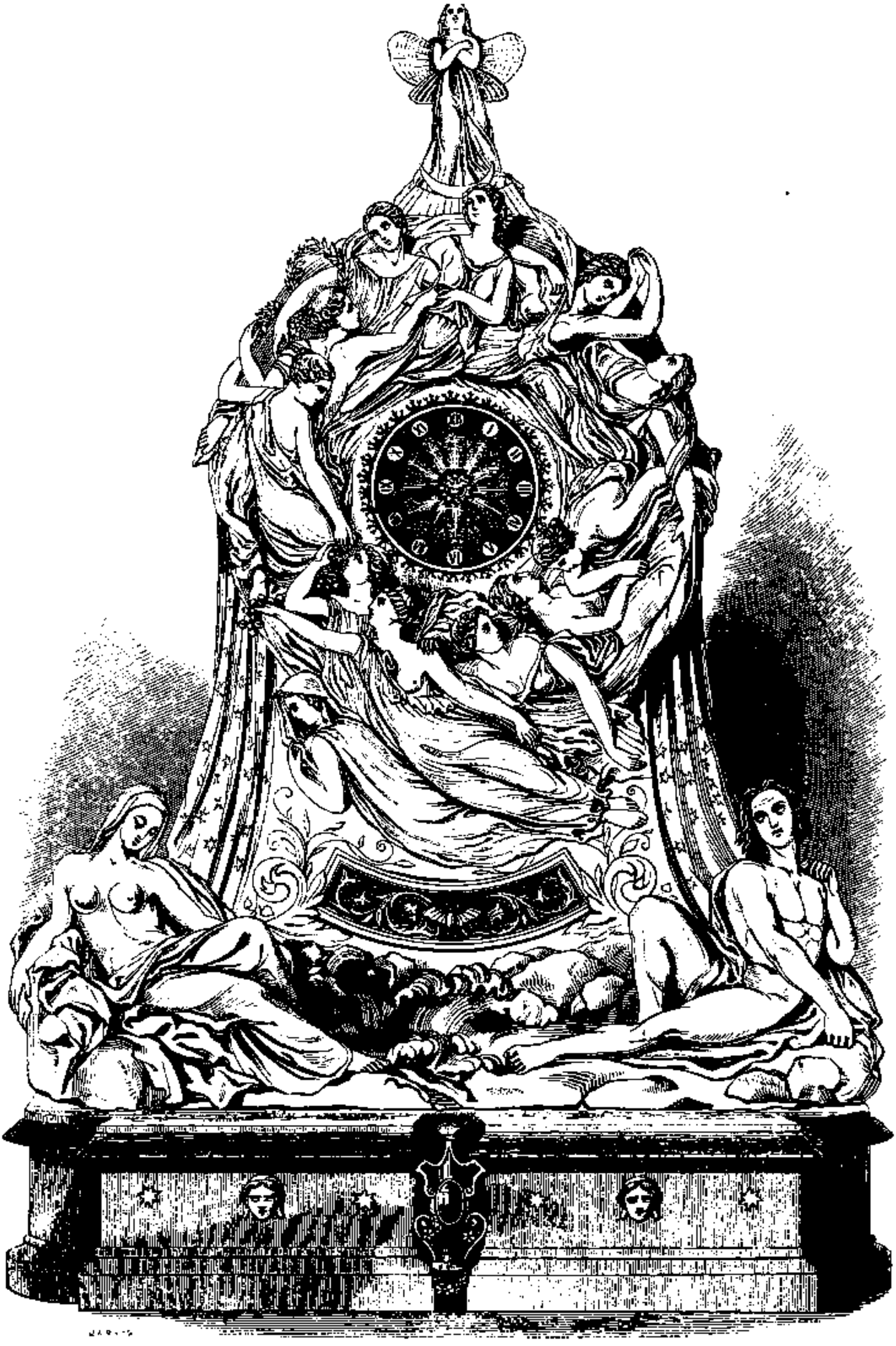
CL. XXII., 802.—ORNAMENTAL CAST-IRON MANTELPIECE, IN BERLIN BLACK, WITH DINING-ROOM GRATE AND FENDER COMPLETE. ROBERTSON, CARR, AND STEEL, SHEFFIELD.



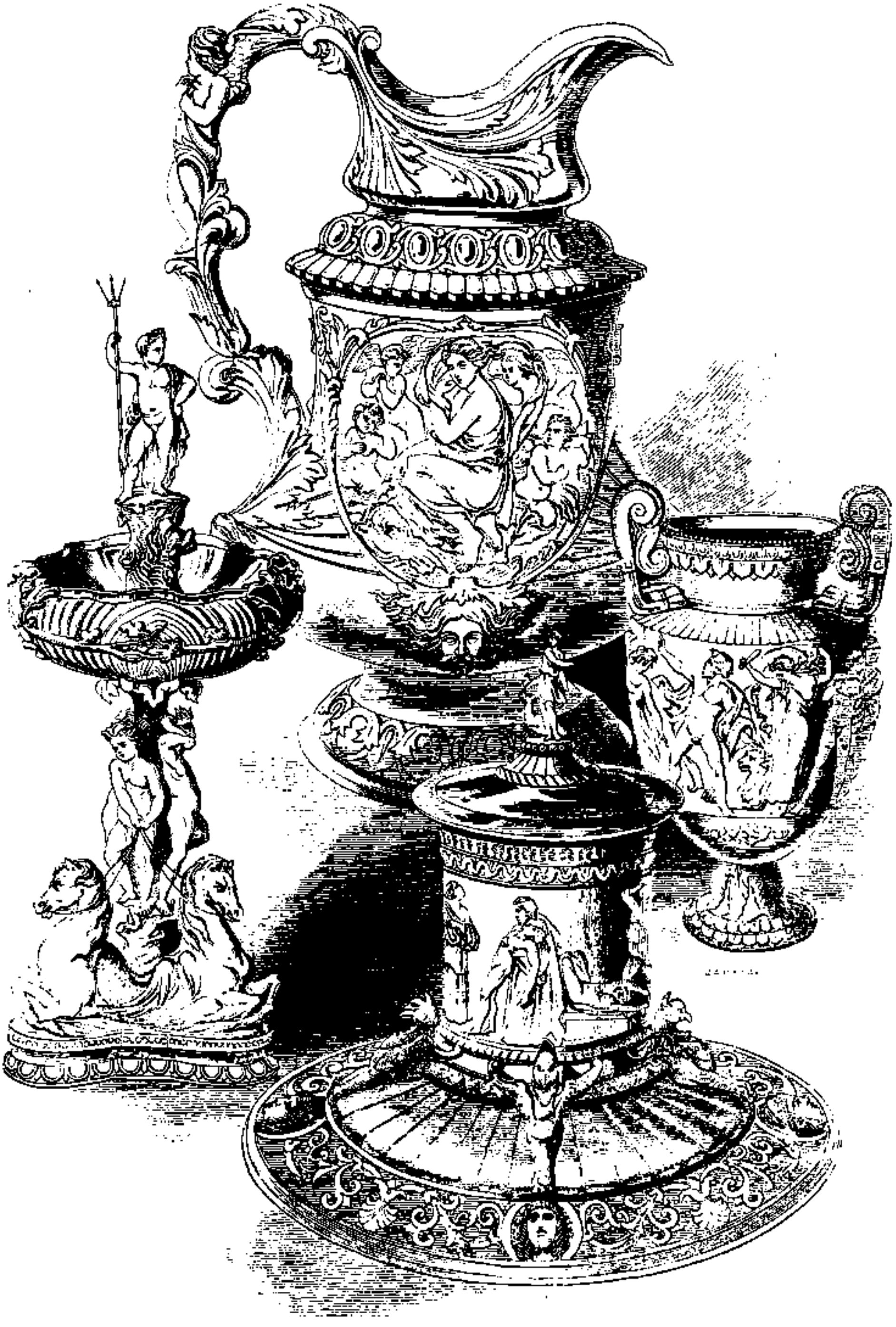
CL. XXII., 804.—COATS OF ARMS, IN CAST IRON. R. W. KENNARD AND CO., FALKIRK IRON WORKS, AND UPPER THAMES STREET.



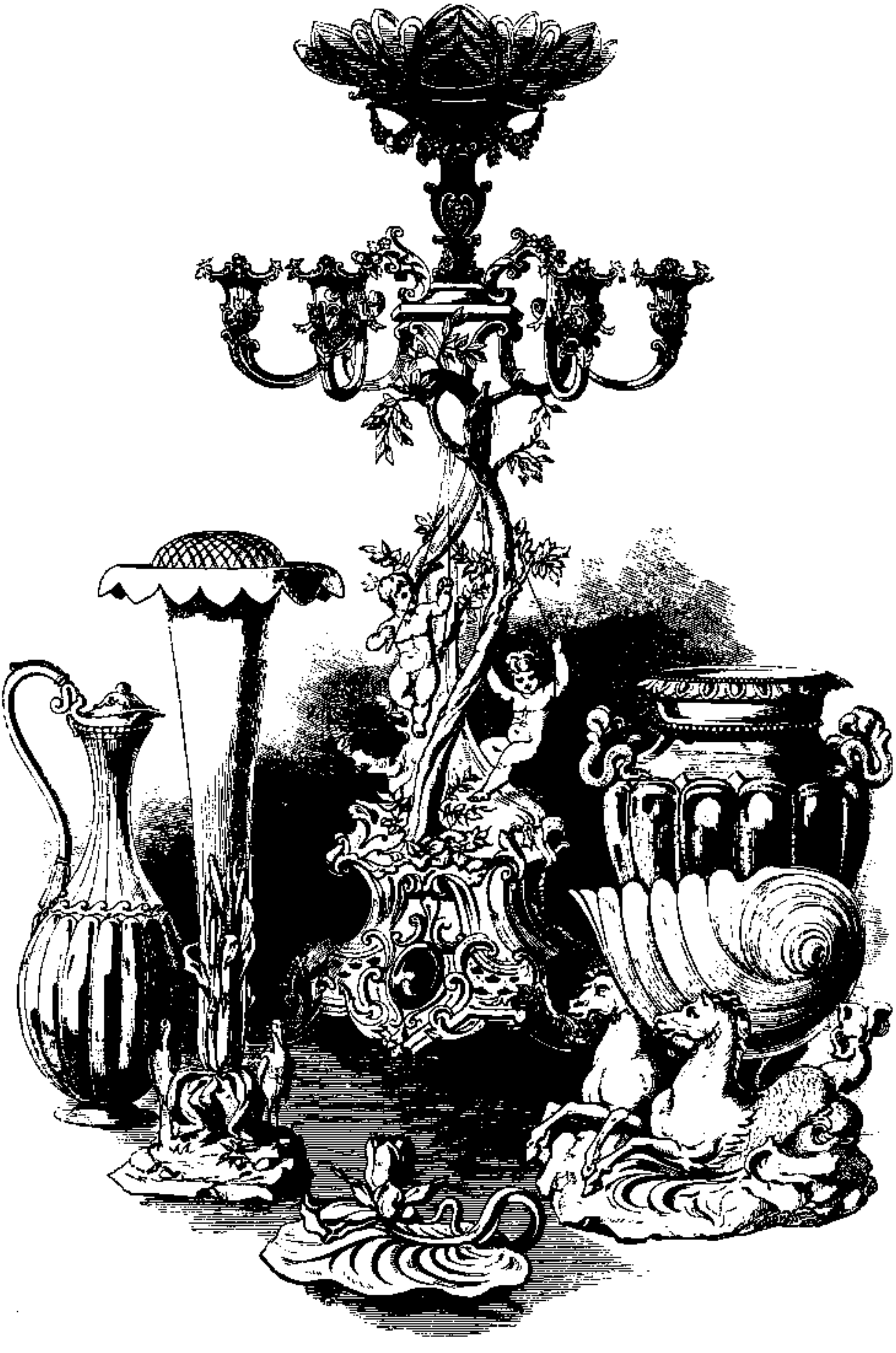
394. CL. XXIII., 1.—EXHIBITION VASE, REPRESENTING THE TRIUMPHS OF SCIENCE AND INDUSTRY, WITH FOUR STATUETTES OF NELSON, BACON, SHAKSPEARE, AND WATT.
ELKINGTON, MASON, AND CO., LONDON AND BIRMINGHAM.



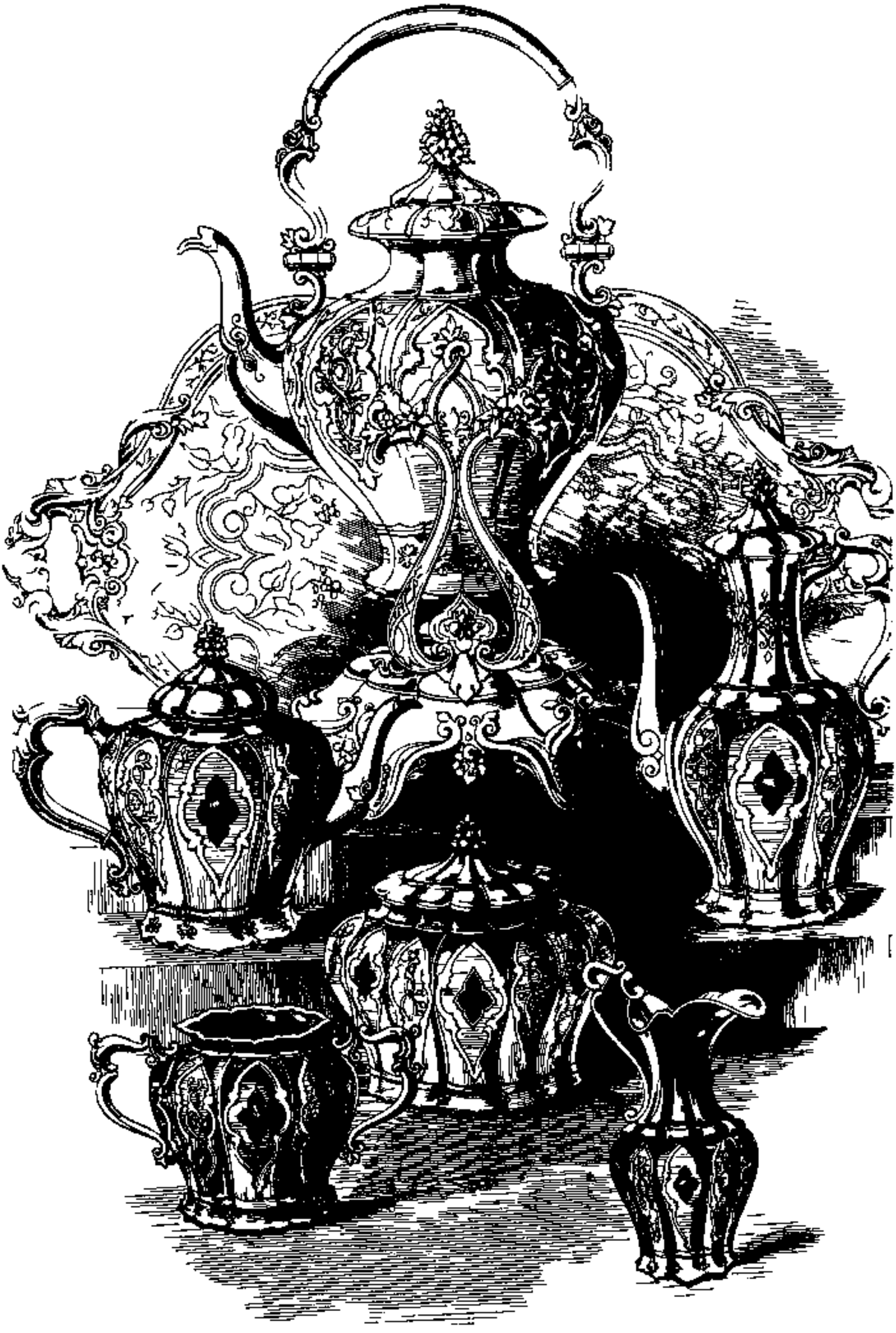
CL. XXIII., I.—THE HOURS—CLOCK-CASE IN ELECTRO-BRONZE, DESIGNED BY JOHN BELL.
ELKINGTON, MASON, AND CO., LONDON AND BIRMINGHAM.



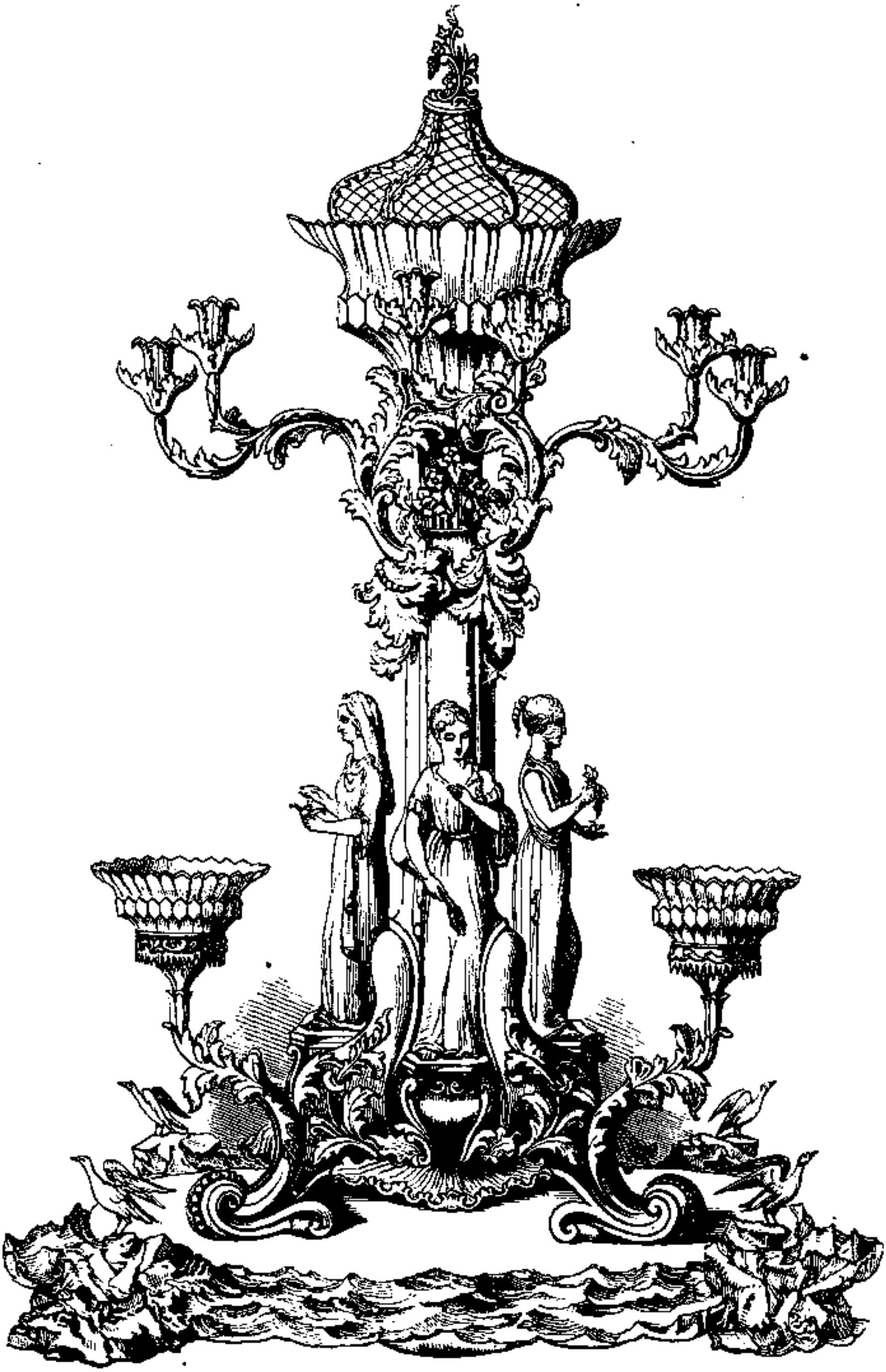
397. CL. XXIII., 1.—PARCEL SILVER GILT HAMILTONIAN VASE; INKSTAND, FROM THE ELGIN MARBLES; WINE TANKARD, AND ROYAL NEPTUNE SALT-CELLAR.
ELKINGTON, MASON, AND CO., LONDON AND BIRMINGHAM.



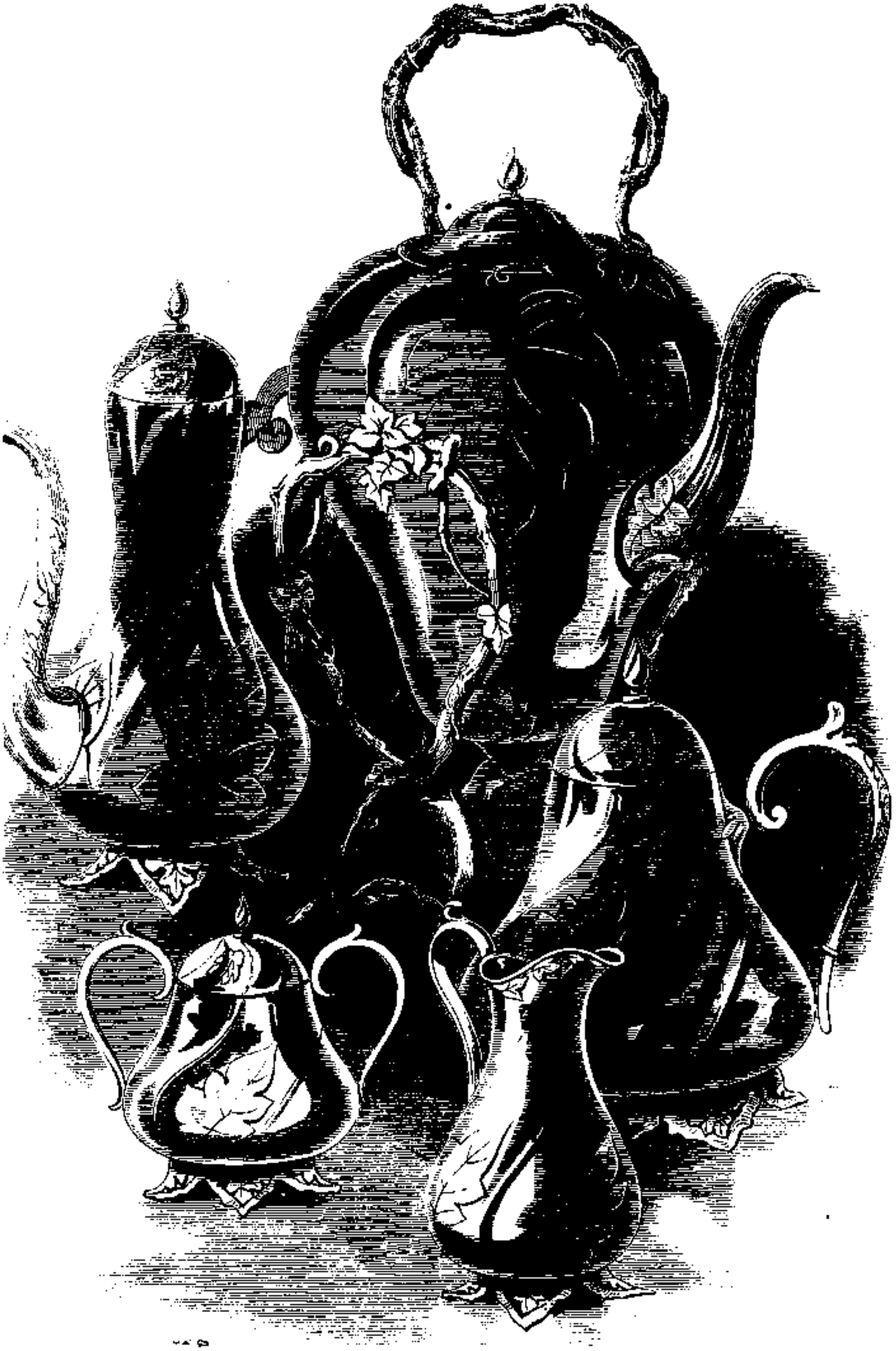
CL. XXIII., 1.—CENTRE-PIECE, TO BE USED AS AN EPERGNE OR CANDELABRUM; GRECIAN WINE-COOLER AND CLARET JUG; FLOWER VASE, WITH SEA-HORSES, ETC.; CANDLESTICK—DESIGN, LOTUS LEAVES. ELKINGTON, MASON, AND CO., LONDON AND BIRMINGHAM.



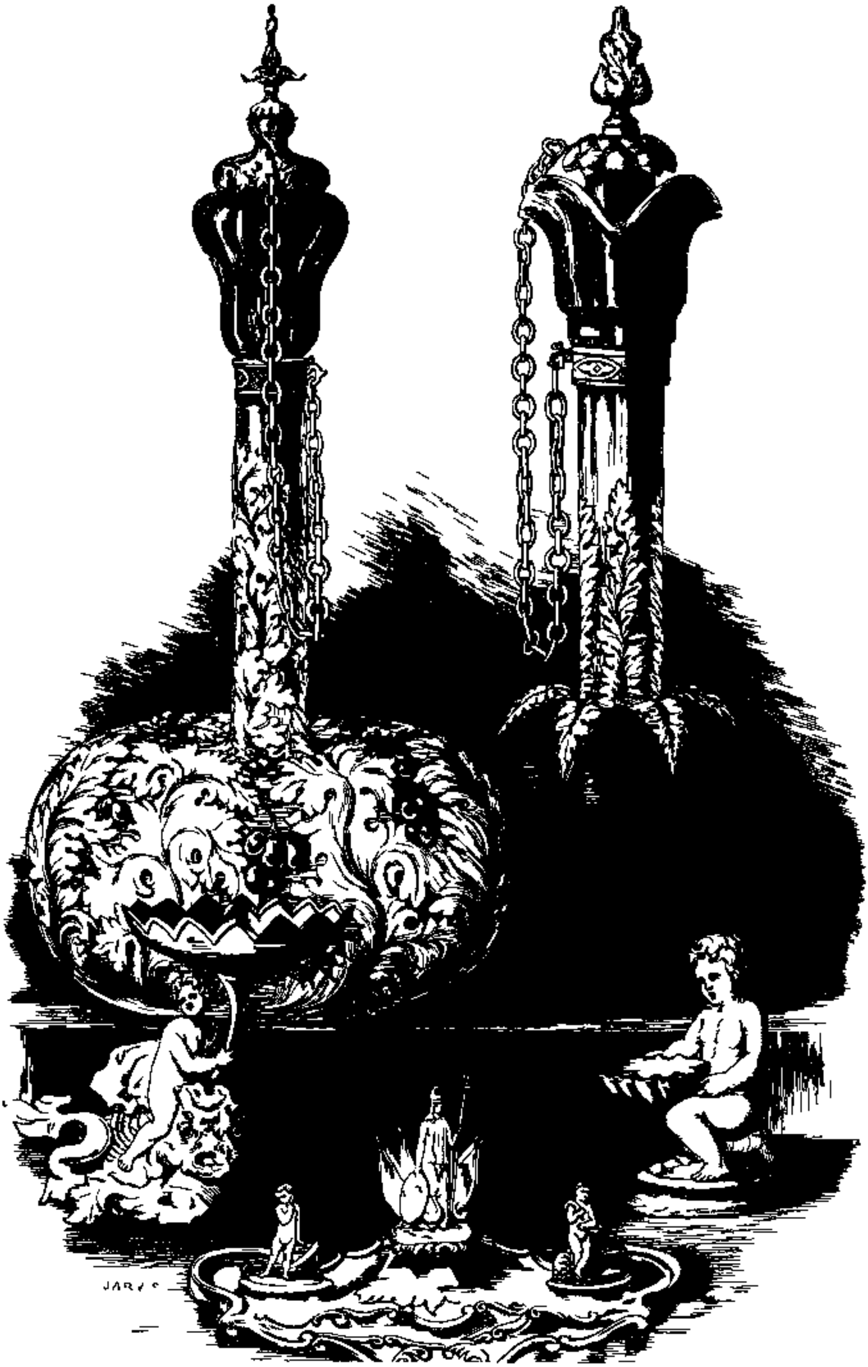
395. CL XXIII, 1 —ELECTRO-SILVER TEA SERVICE, KETTLE, STAND, AND TRAY, RICHLY ENGR
STYLE ARABESQUE.



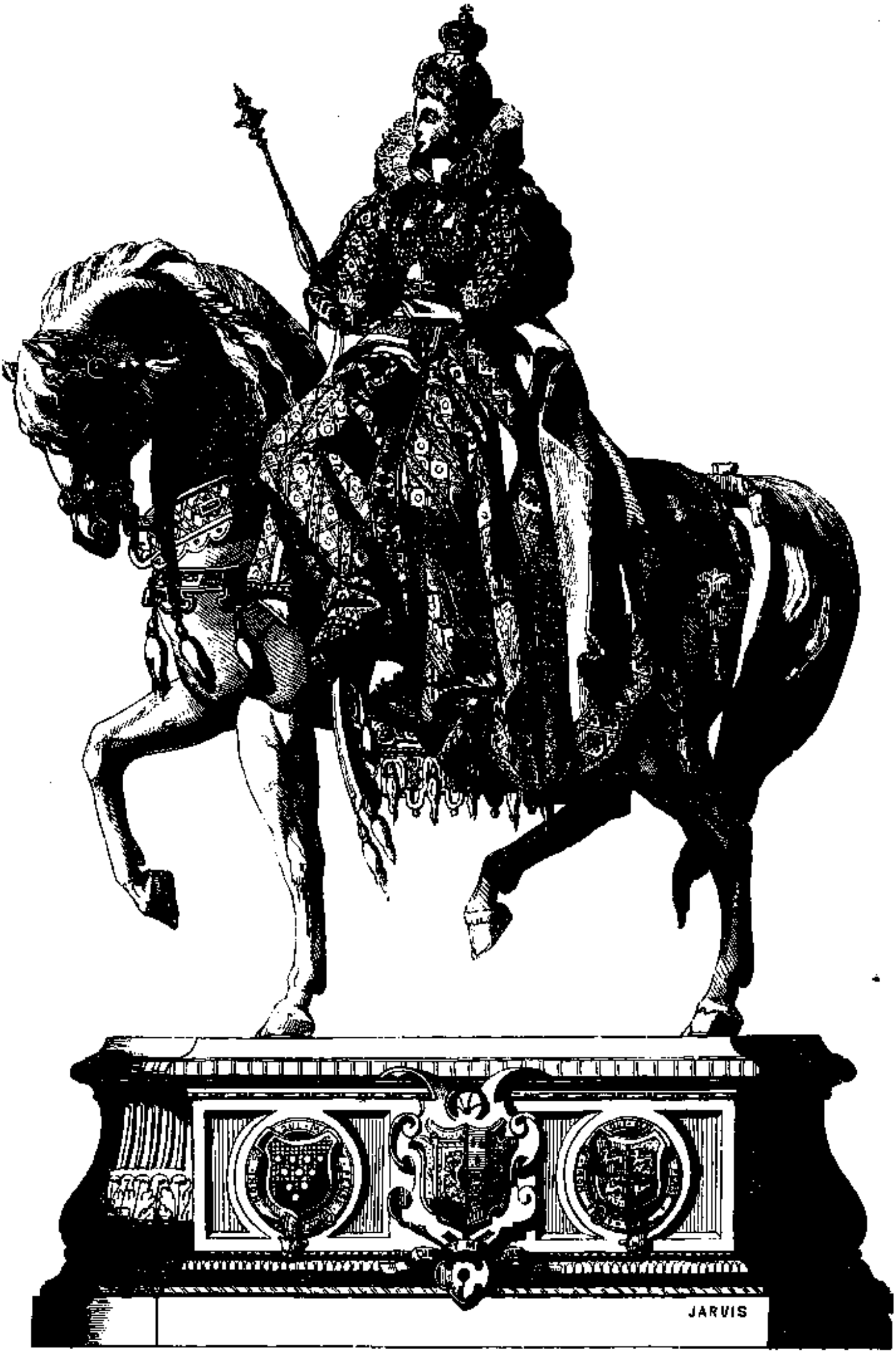
415. CL. XXIII., 38.—SILVER CANDELABRUM AND EPERGNÉ, WITH CRYSTAL GLASS—ILLUSTRATIVE OF THE FOUR SEASONS, WITH MASSIVE PLATEAU, ENCIRCLED BY ROCKS, SEA-GULLS, AND SHELLS.
JAMES DIXON AND SONS, SHEFFIELD.



1., 58.—ELECTRO-PLATED AND BRITANNIA METAL TEA SERVICE.
J. DIXON AND SONS, SHEFFIELD.

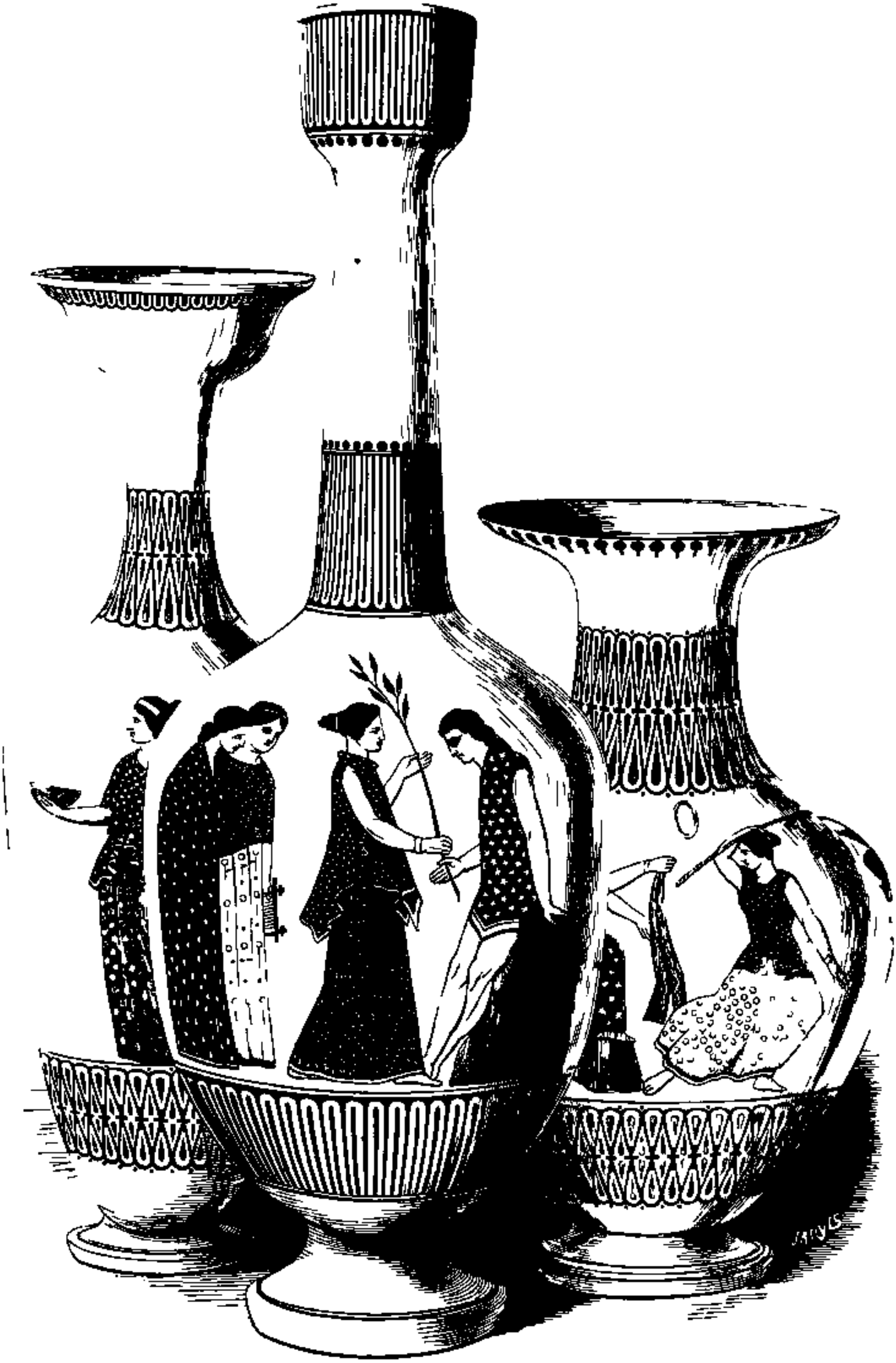


447 CL XXIII 102 —LARGE PARTLY GILT SILVER WINE FLAGON, ELABORATELY CHASED IN THE MEDIÆVAL STYLE
A COMPANION DITTO WITH OAK LEAF CHASING, ETC LAMBERT AND RAWLINGS COVENTRY STREET

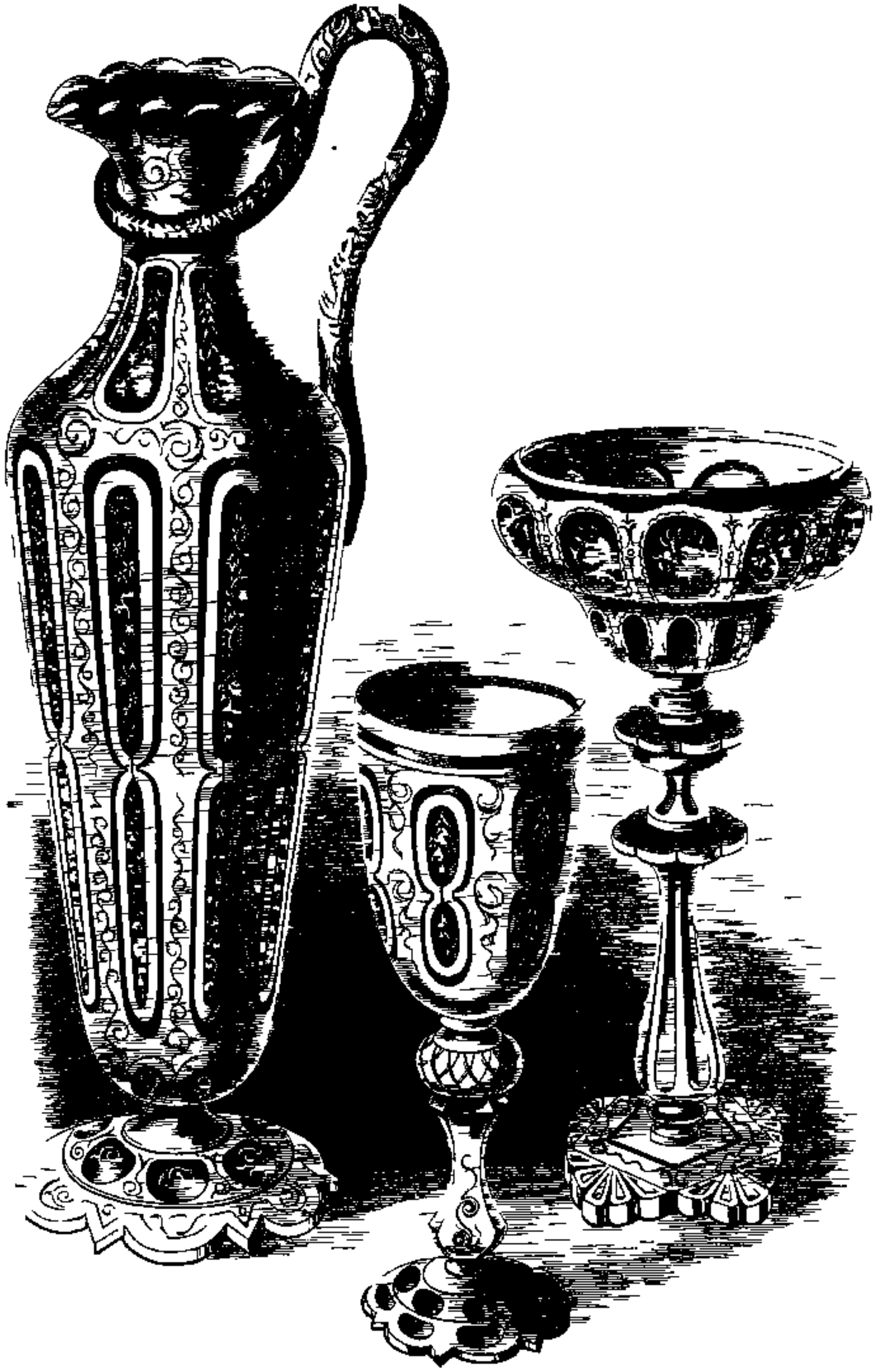


CL. XXIII. 117.—EQUESTRIAN STATUE OF QUEEN ELIZABETH, IN SILVER, EMBOSSED WITH THE HAMMER.
J. V. MOREL AND CO., 7, NEW BURLINGTON STREET.

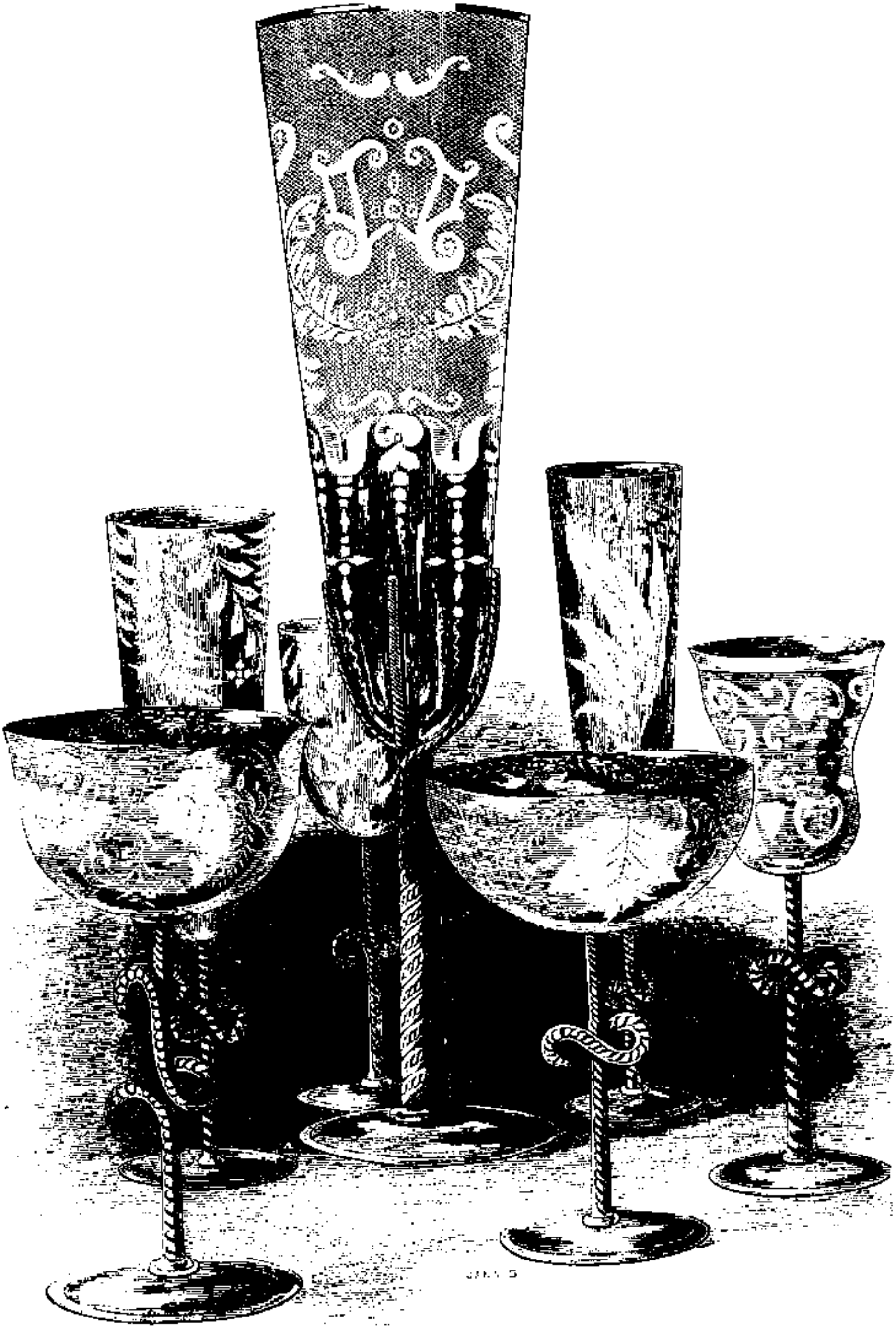
CL. XXIII. 117.—BOUQUET, COMPOSED OF DIAMONDS AND RUBIES, SEPARATING INTO SEVERAL DIFFERENT ORNAMENTS. J. V. MOREL AND CO., 7, NEW BURLINGTON STREET.



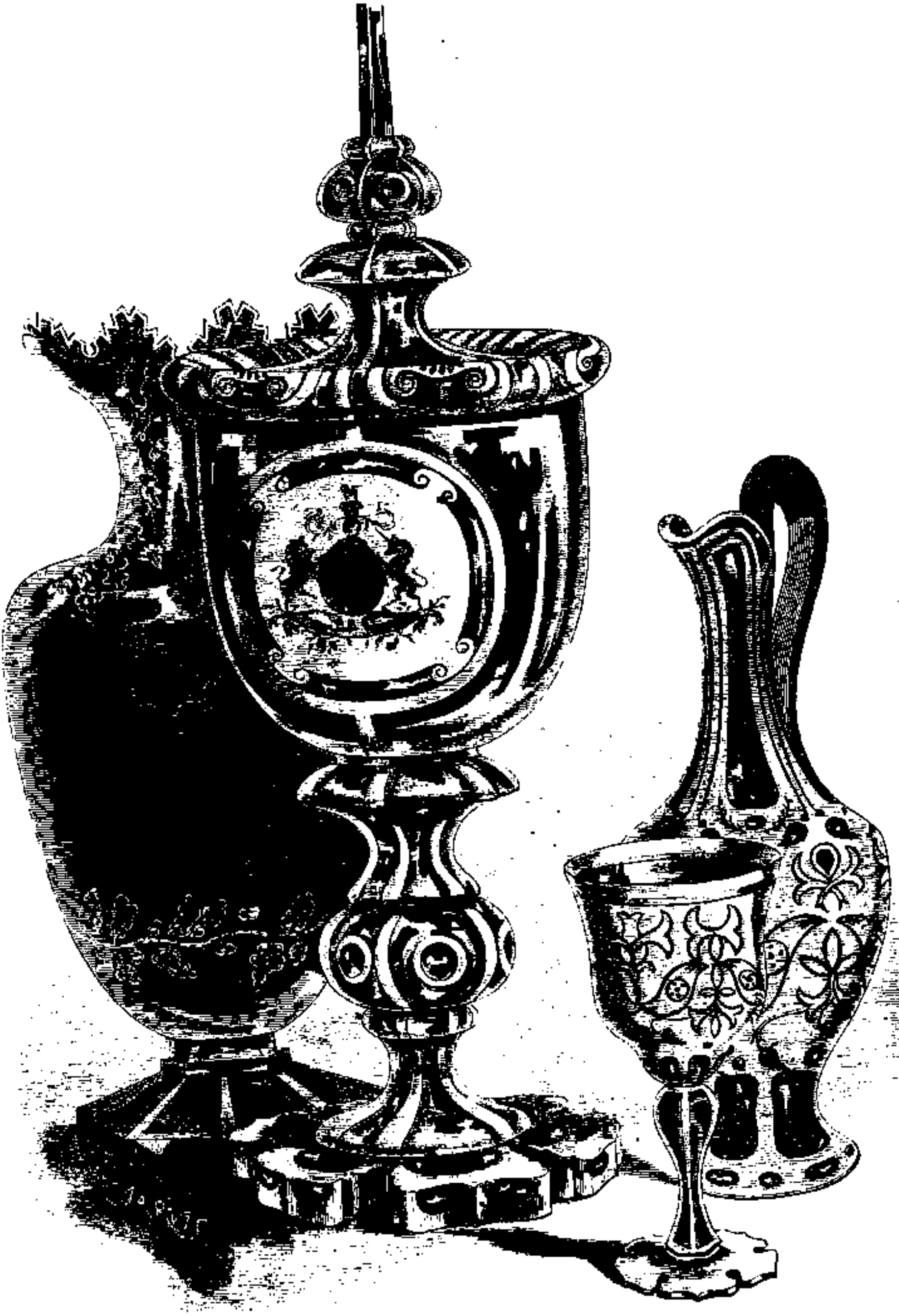
CL. XXIV., 15.—ETRUSCAN VASES. DAVIS, GREATHEAD, AND GREEN.



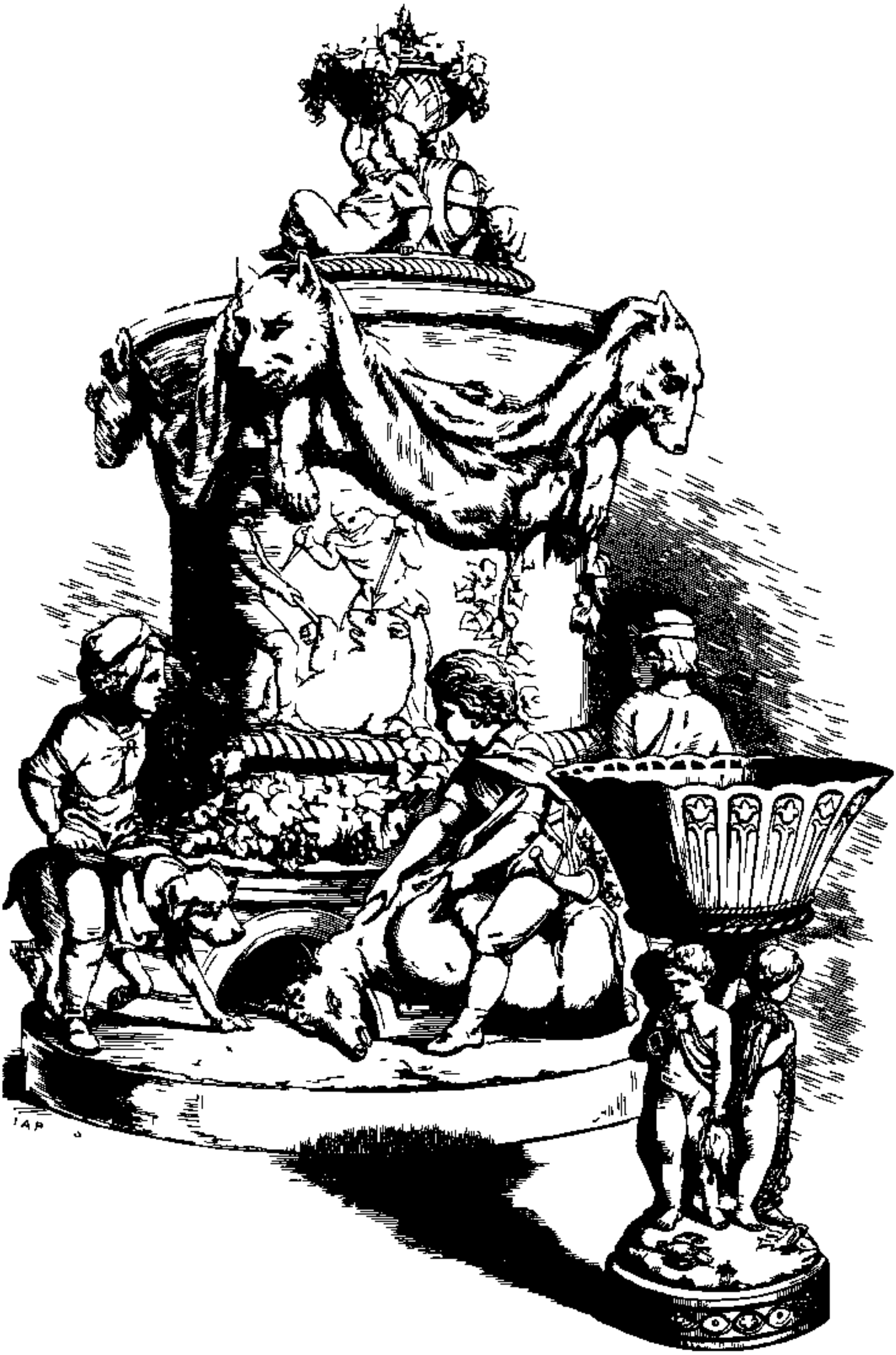
401 CL. XXIV., 19.—JUG AND GOBLETS IN BLUE FLINT GLASS, ENAMELLED, CUT, ENGRAVED, AND GILT. G. BACCHUS AND SONS, BIRMINGHAM.



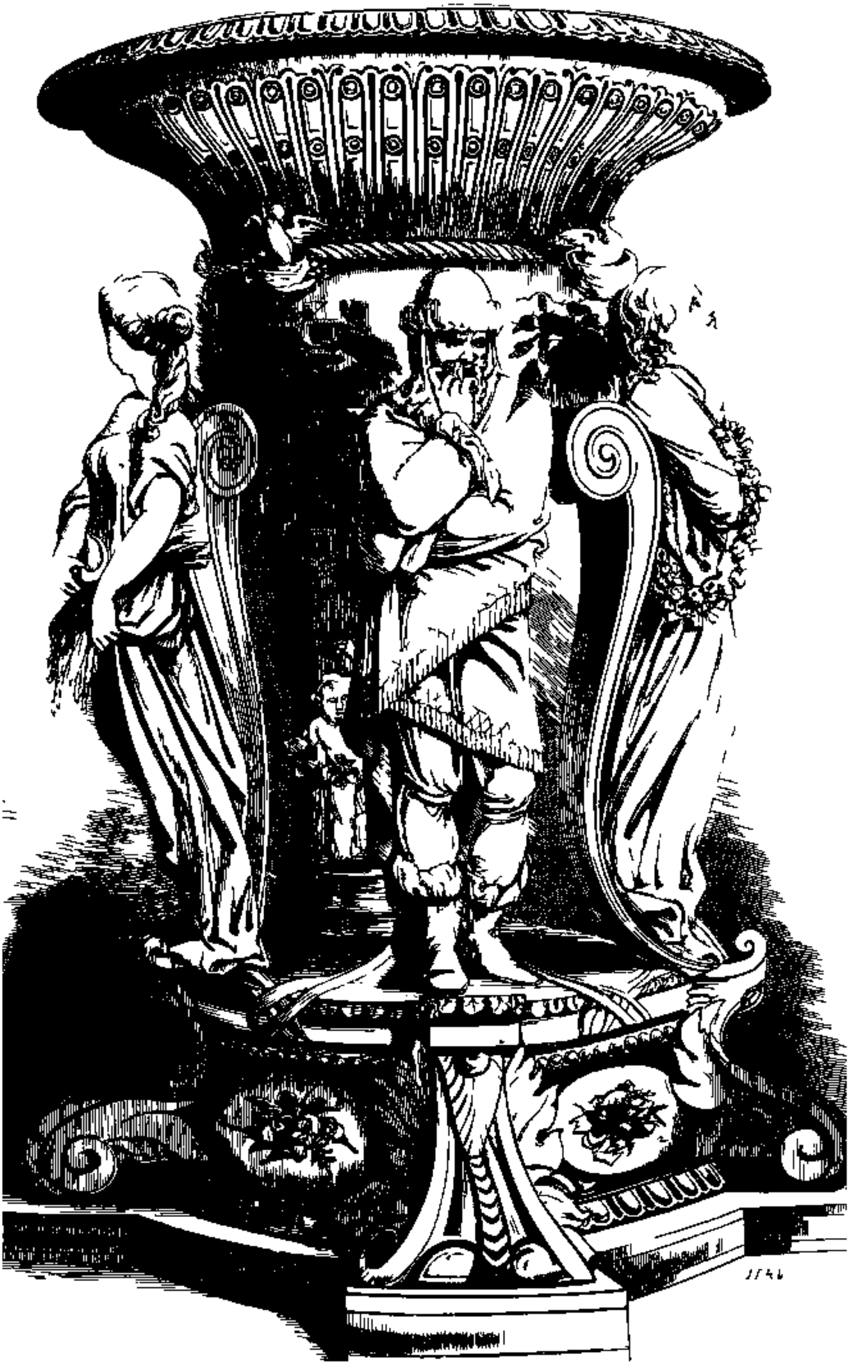
CL. XXIV. 19.—VENETIAN GLASS. BACCHUS AND SONS, BIRMINGHAM.



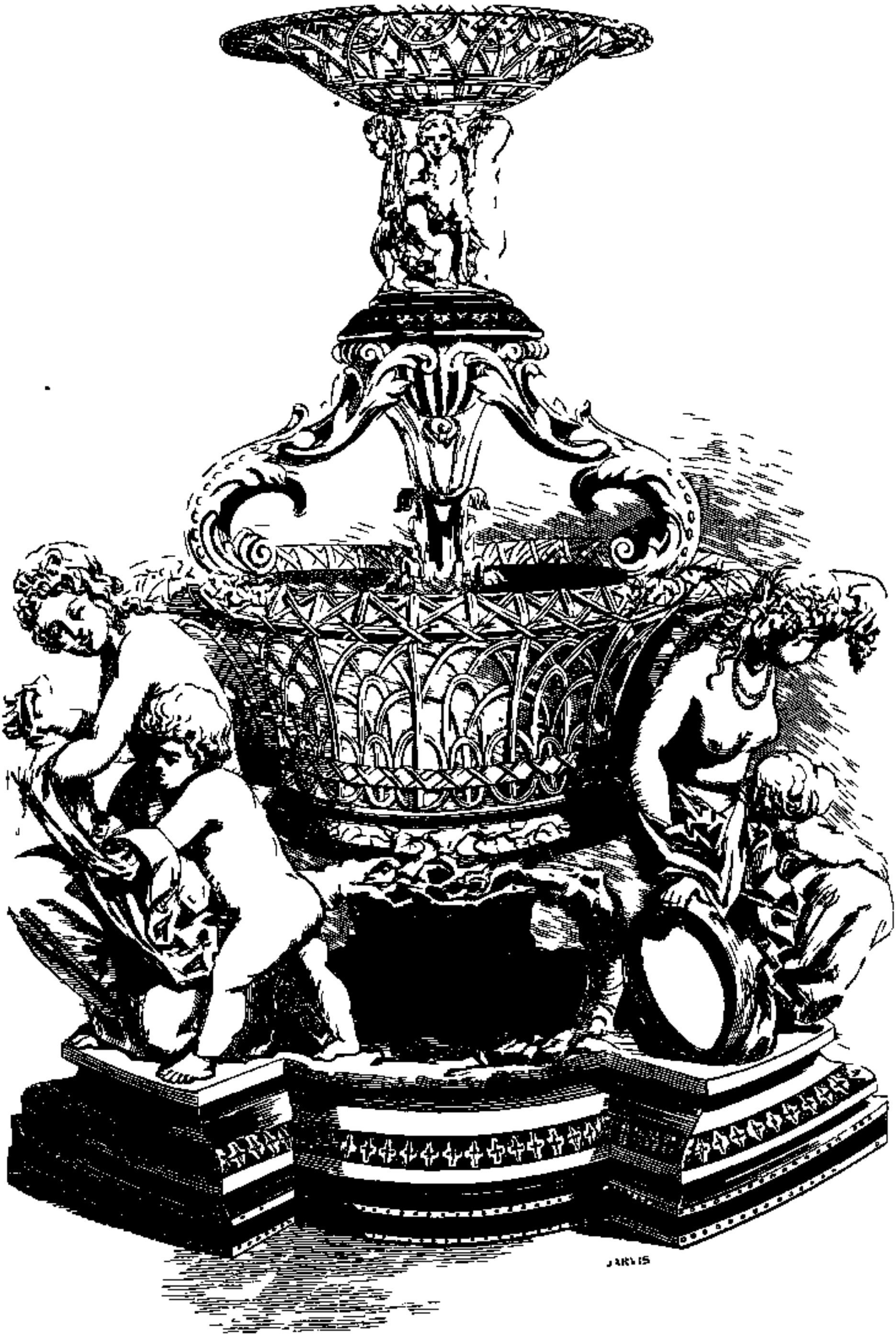
BOHEMIAN GLASS. RICE HARRIS AND SON.



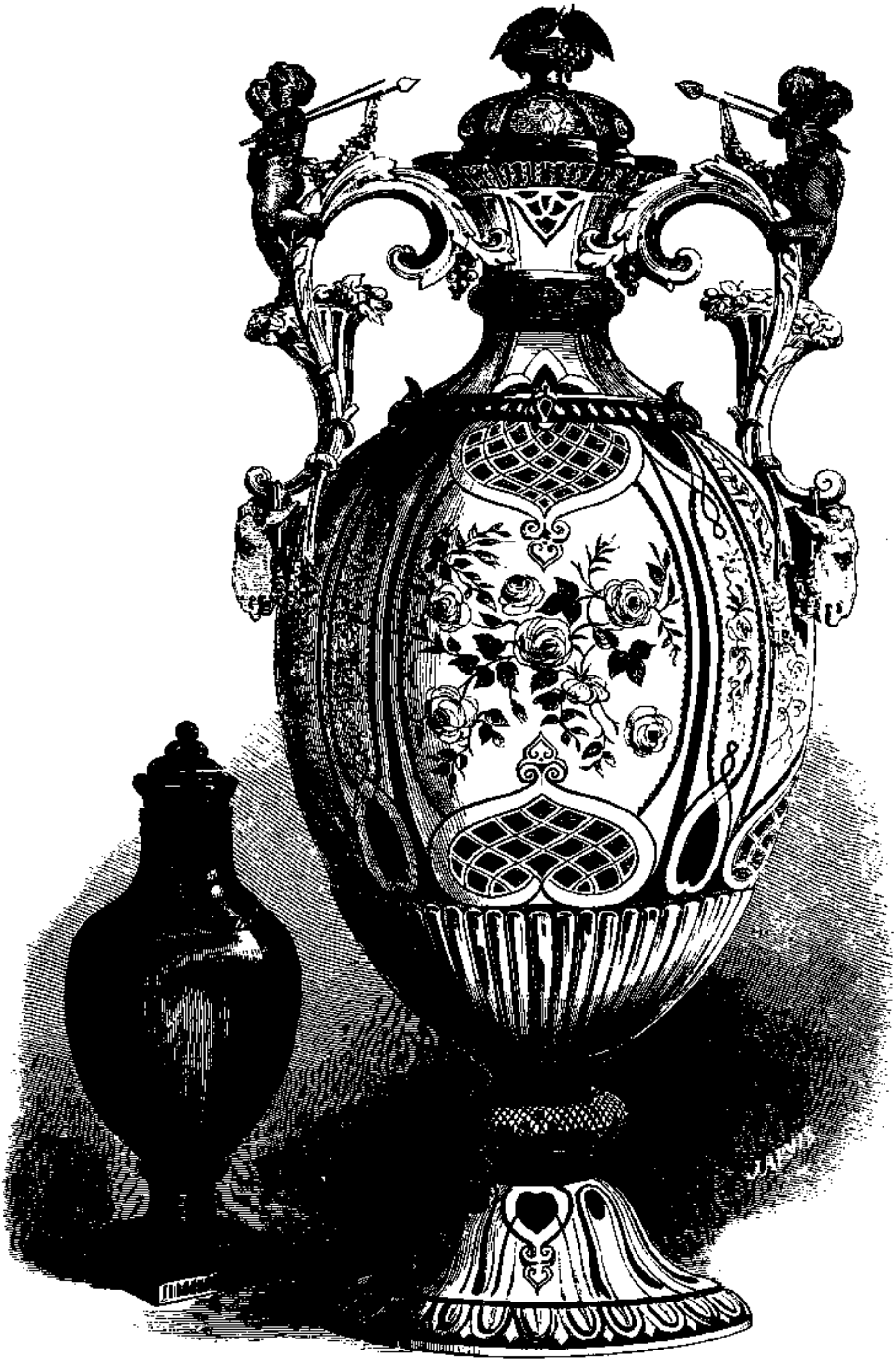
CL. XXV., 1.—LARGE WINE COOLER. MINTON AND CO.
PART OF SERVICE PRESENTED BY HER MAJESTY TO THE EMPEROR OF AUSTRIA



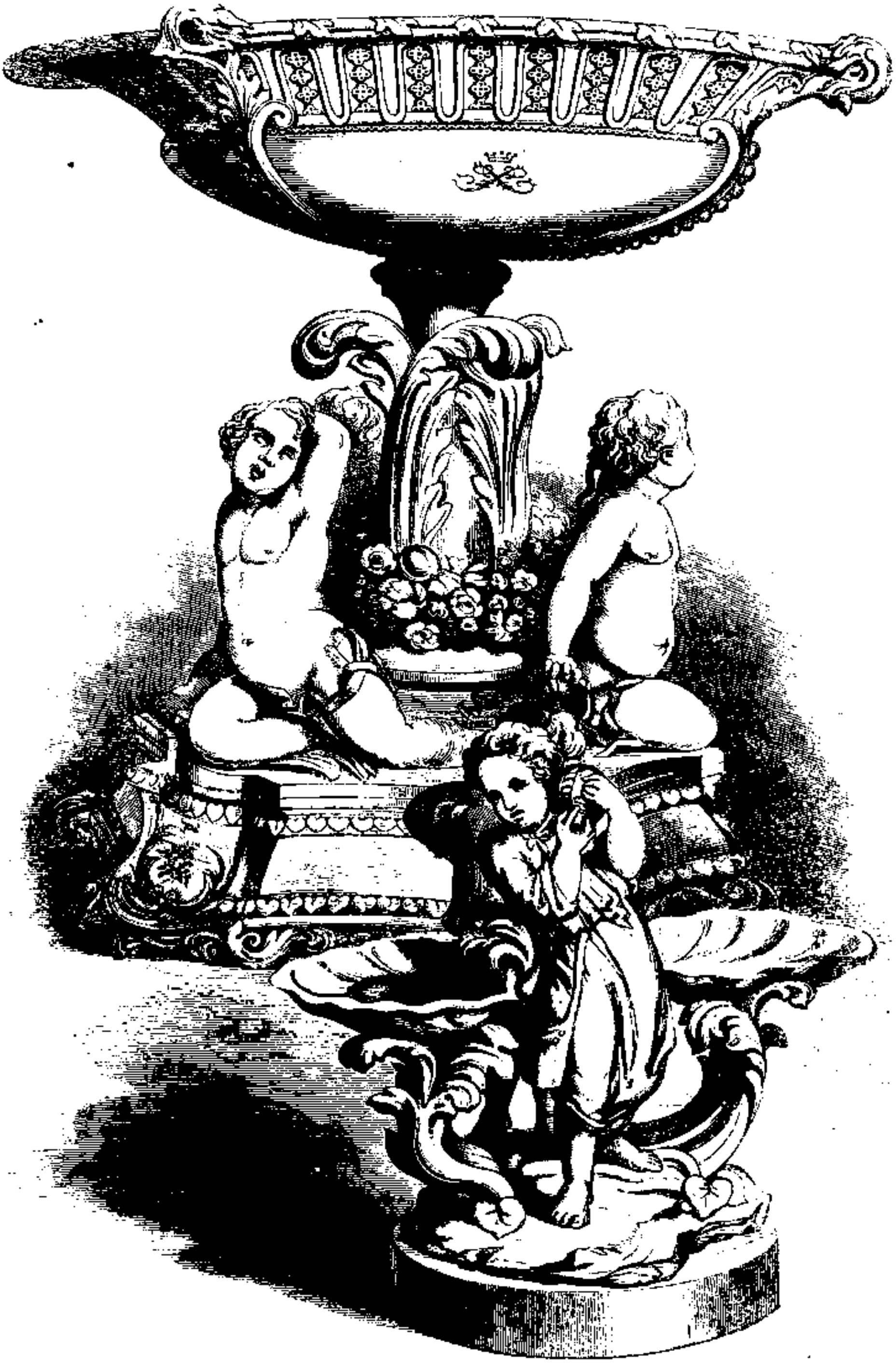
361 CL XXV 1 —GRAND CENTRE-BASKET, IN PORCELAIN, WITH FIGURES, IN PARIAN, REPRESENTING THE SEASONS
H MINTON AND CO
PRESENTED BY HER MAJESTY THE QUEEN TO THE EMPEROR OF AUSTRIA



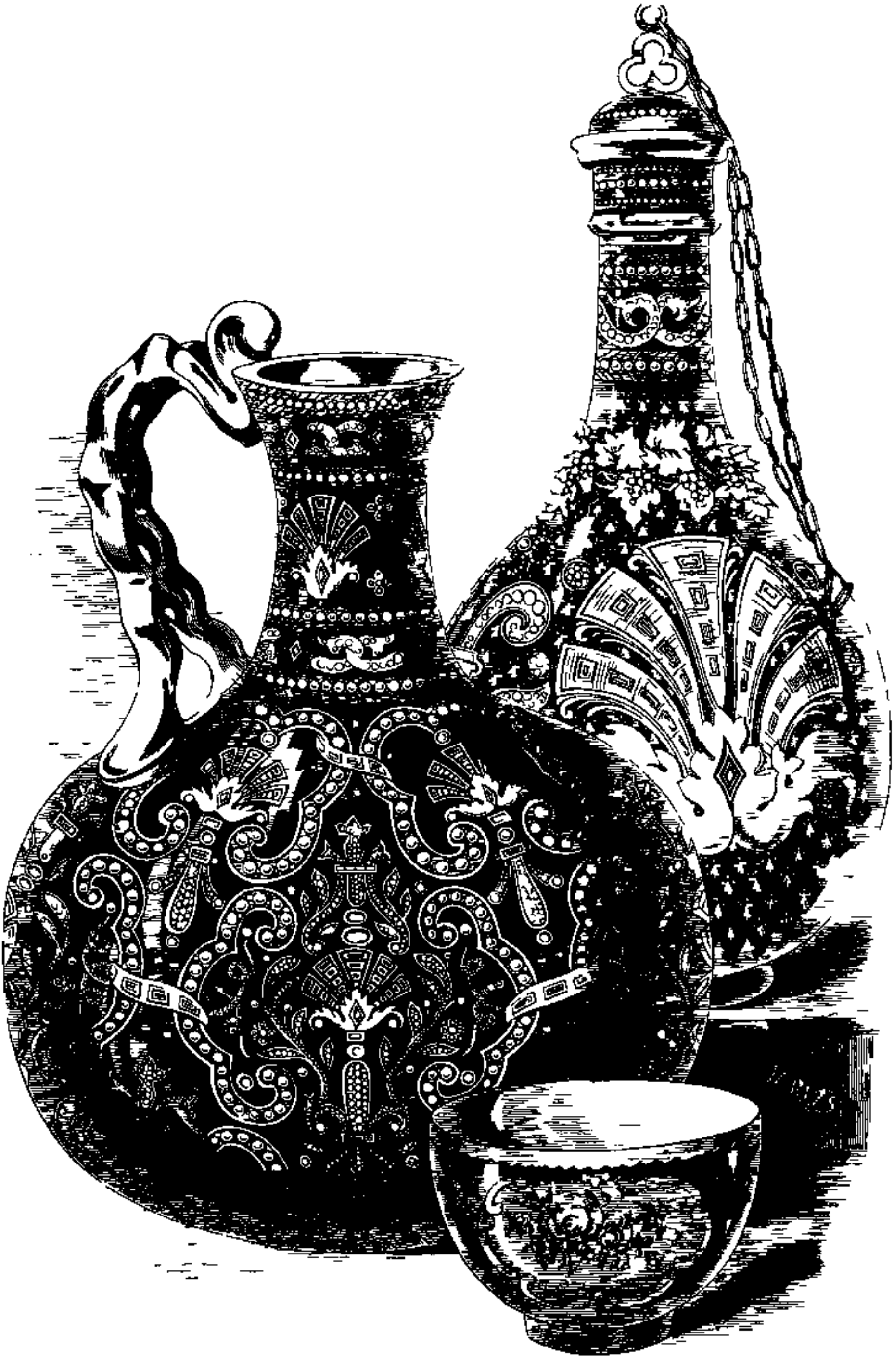
CL. XXV, 1.—TRIANGULAR BASKET. H. MINTON AND CO. (COUNCIL MEDAL.)
PART OF SERVICE PRESENTED BY HER MAJESTY THE QUEEN TO THE EMPEROR OF AUSTRIA.



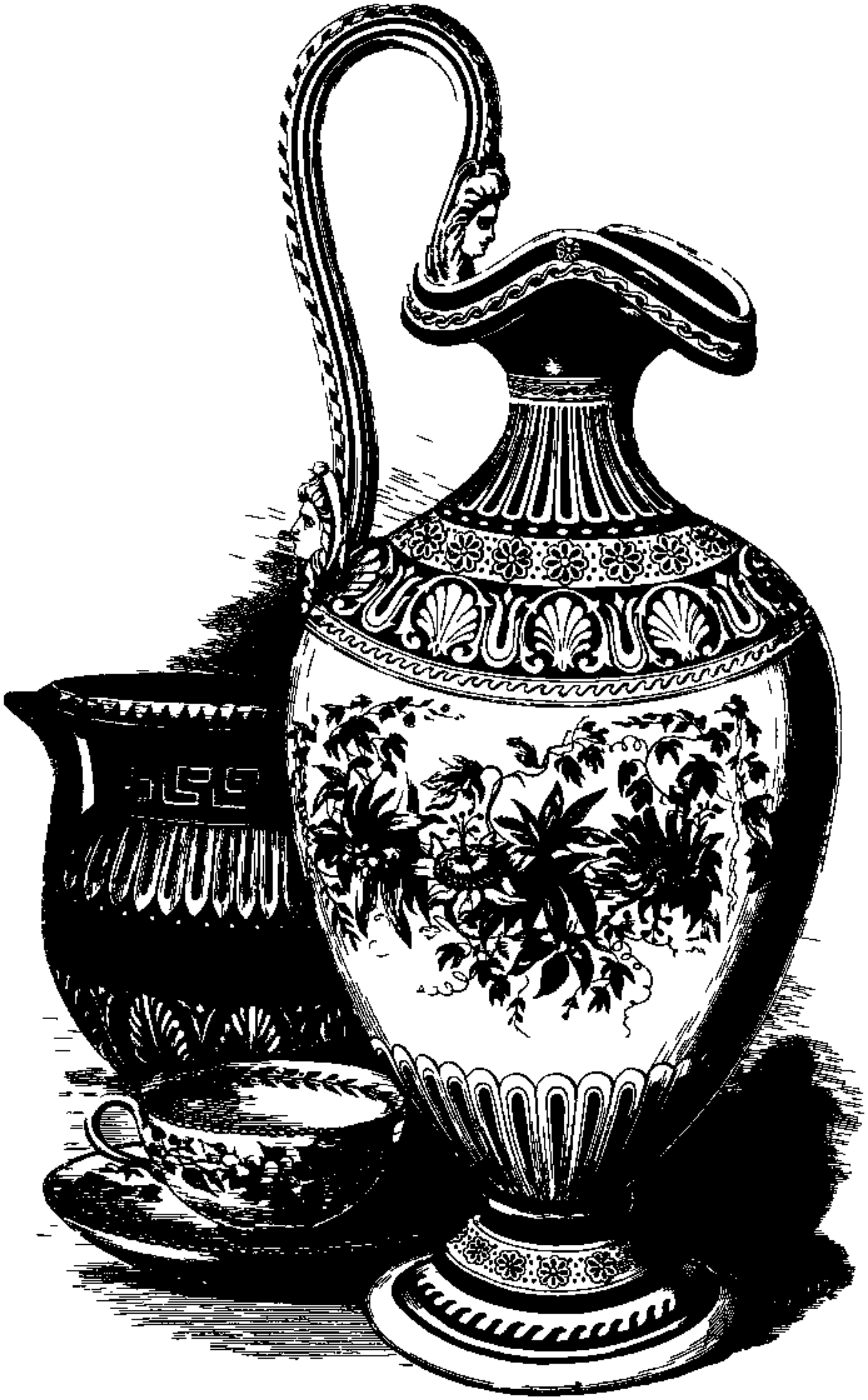
362. CL. XXV., 1.—LARGE VASE, IN PORCELAIN, WITH PERFORATED ORNAMENTS, AND FINISHED WITH OR-MOLU MOUNTINGS. H. MINTON AND CO. (COUNCIL MEDAL.)



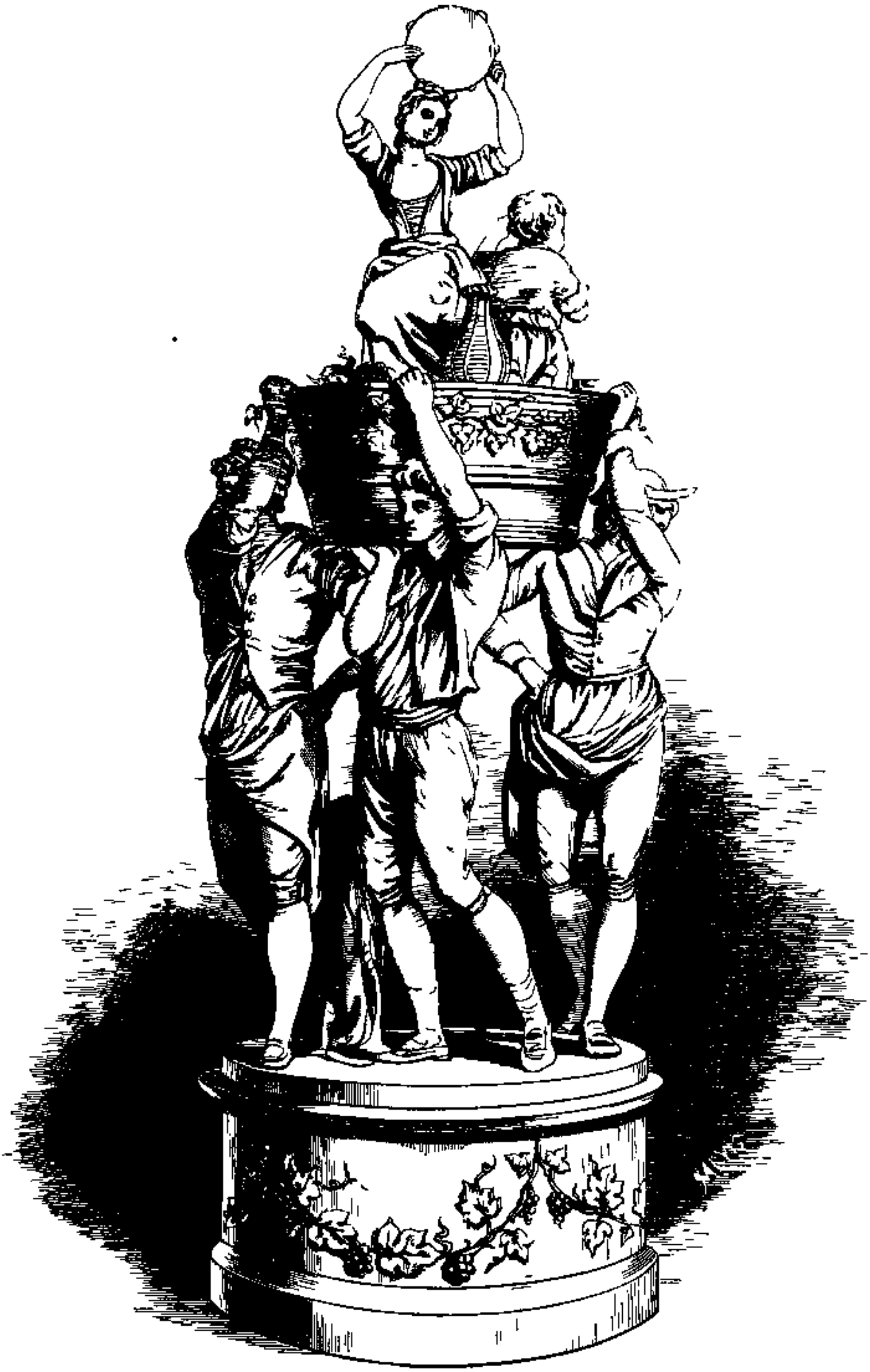
PART OF A CHINA SERVICE. H. MINTON AND CO.
THIS SERVICE HAS BEEN PRESENTED BY HER MAJESTY TO THE EMPEROR OF AUSTRIA.



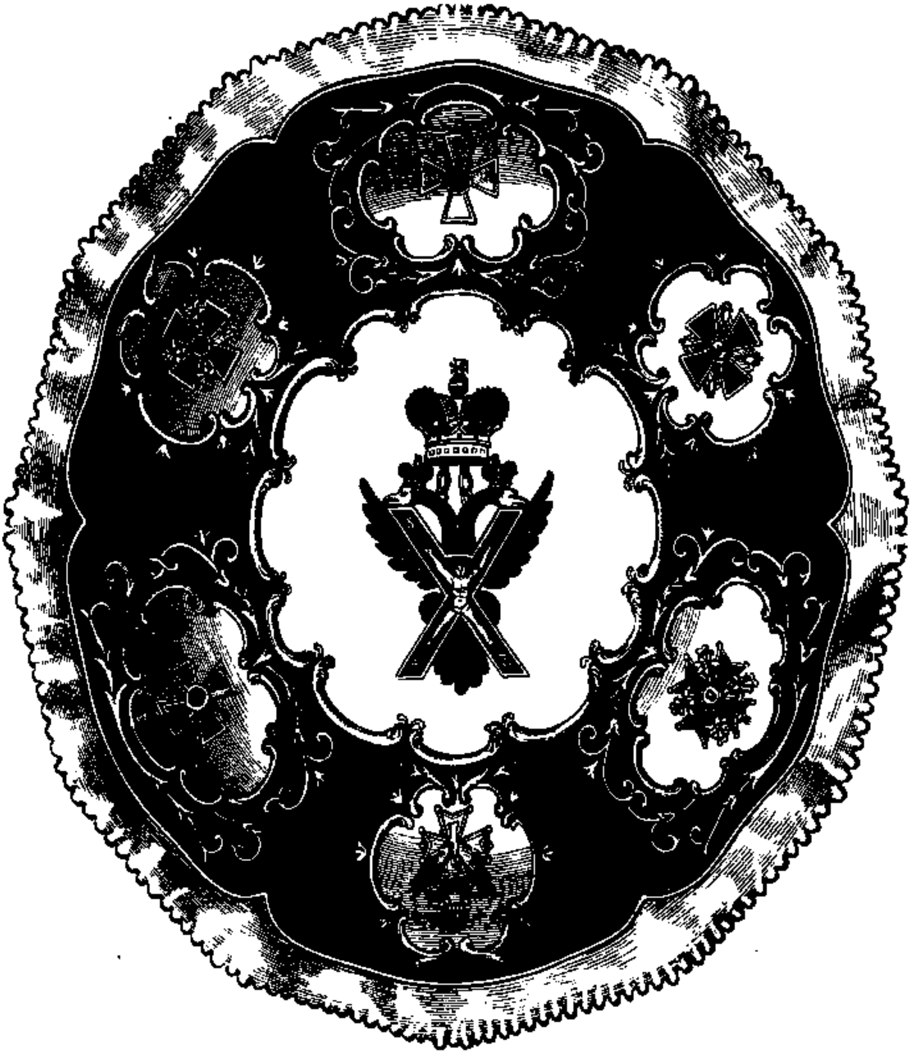
299. PAIR OF ARMADA BOTTLES, WITH JEWEL DESIGN, IN ENAMELS AND GOLD W. T. COPELAND



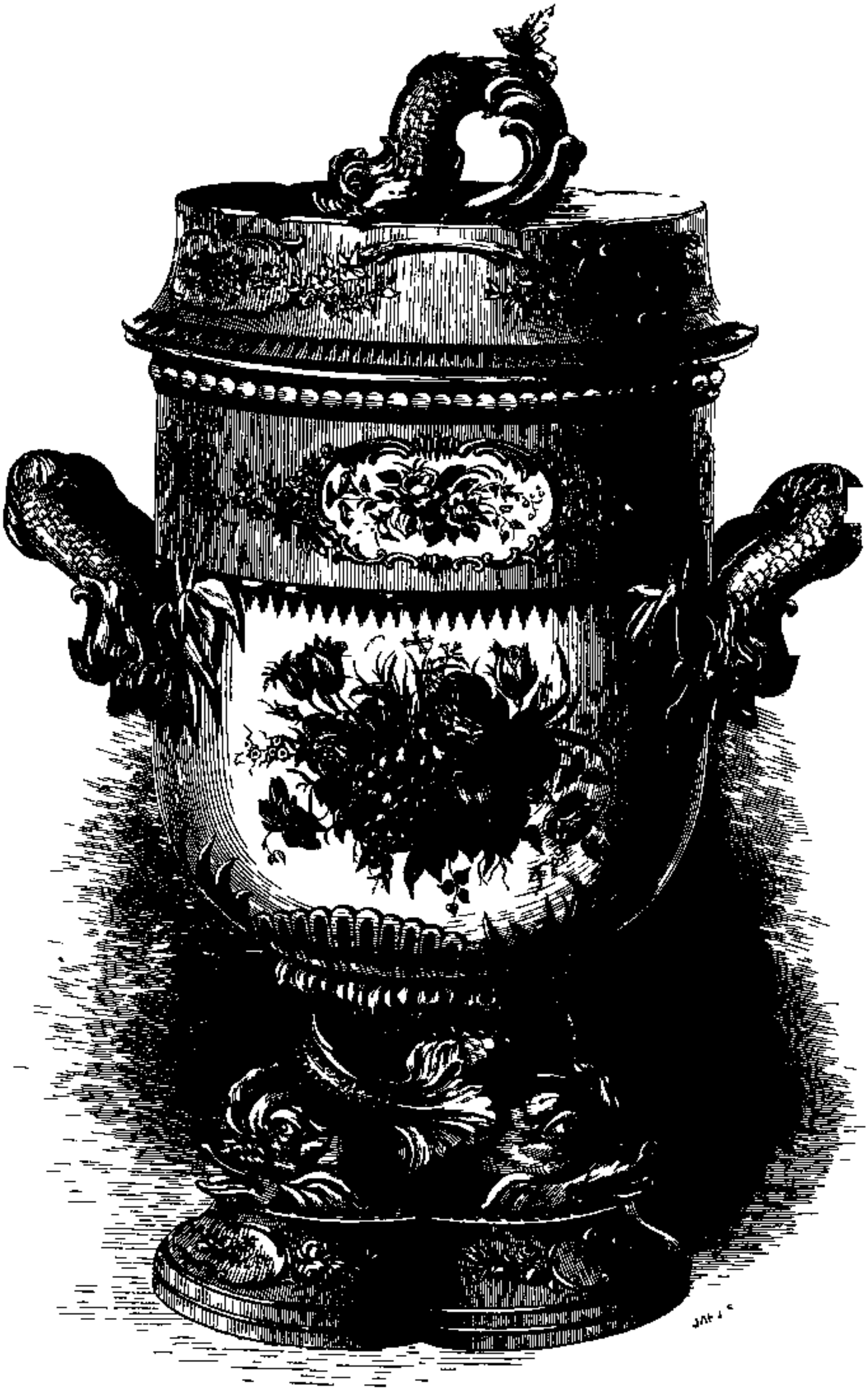
402 CL. XXV, 2.—SPECIMENS OF PORCELAIN. W. T. COPELAND, STOKE-UPON-TRENT AND NEW BOND STREET.



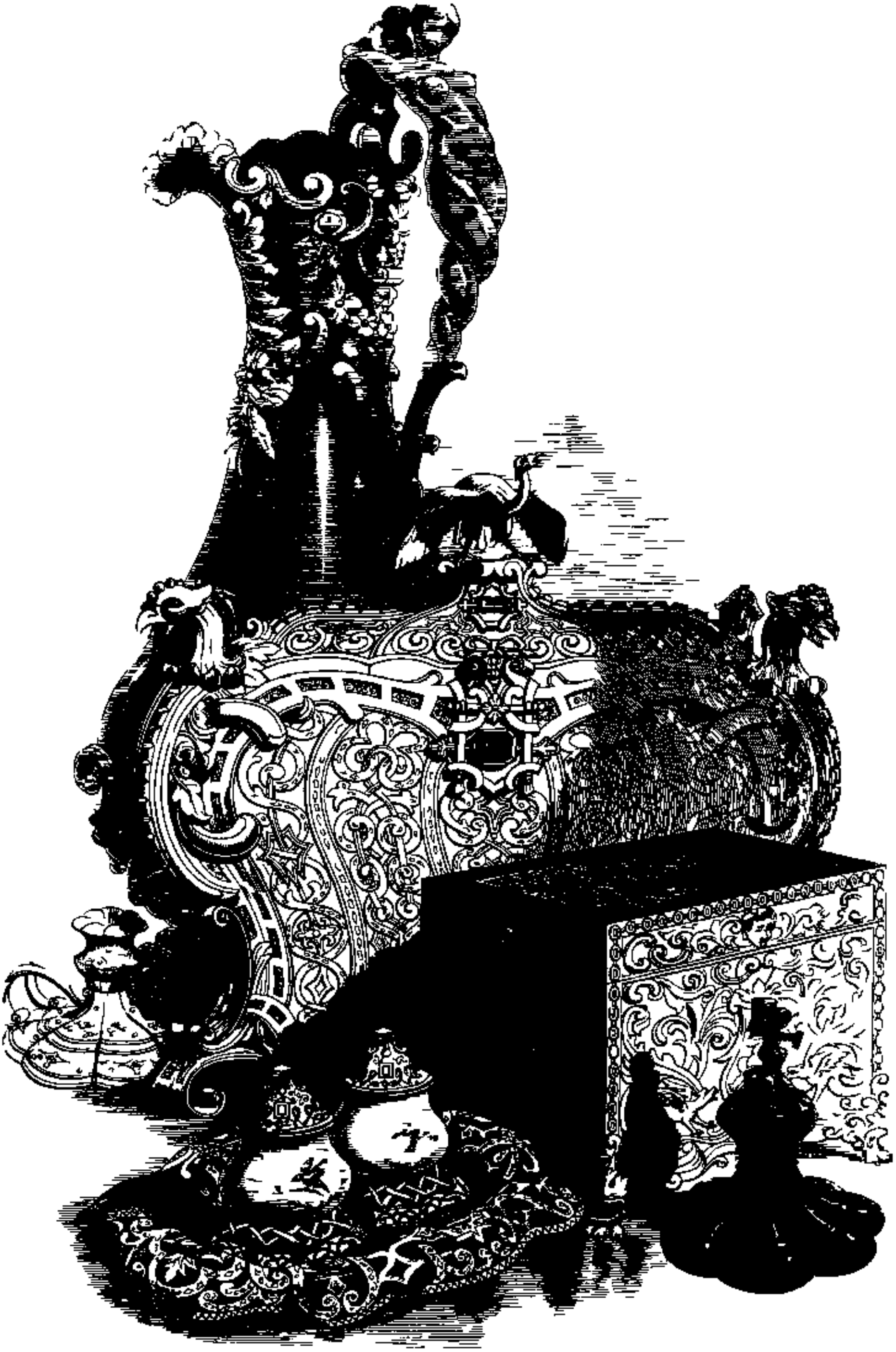
CL. XXV., 2.—GROUP, IN PARIAN—THE RETURN FROM THE VINTAGE
W. T. COPELAND, STOKE-UPON-TRENT AND NEW BOND STREET



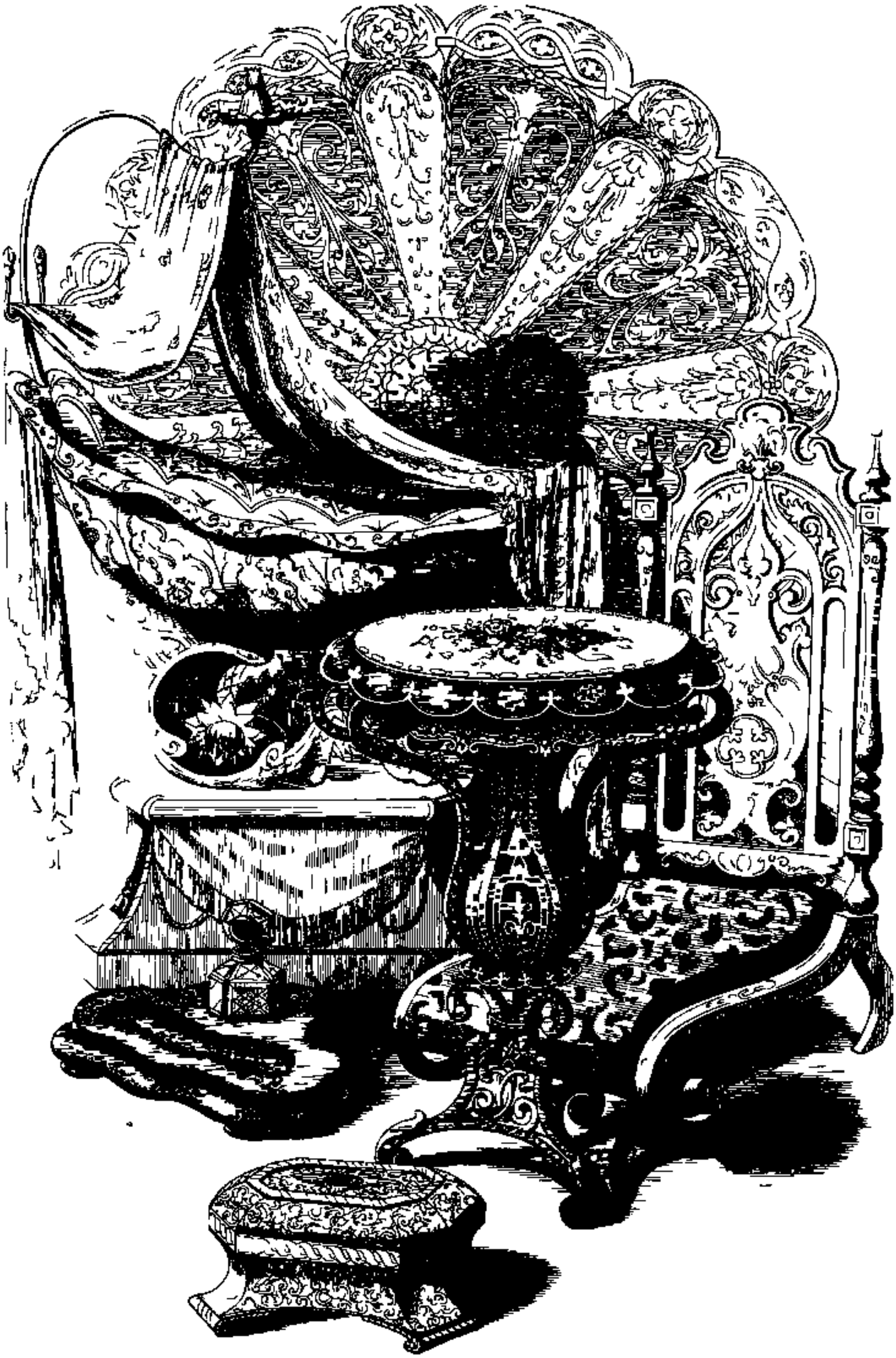
323. CL. XXV. 23.—SPECIMEN PLATE OF PORCELAIN. FOR HIS MAJESTY THE EMPEROR OF RUSSIA. DANIELL.



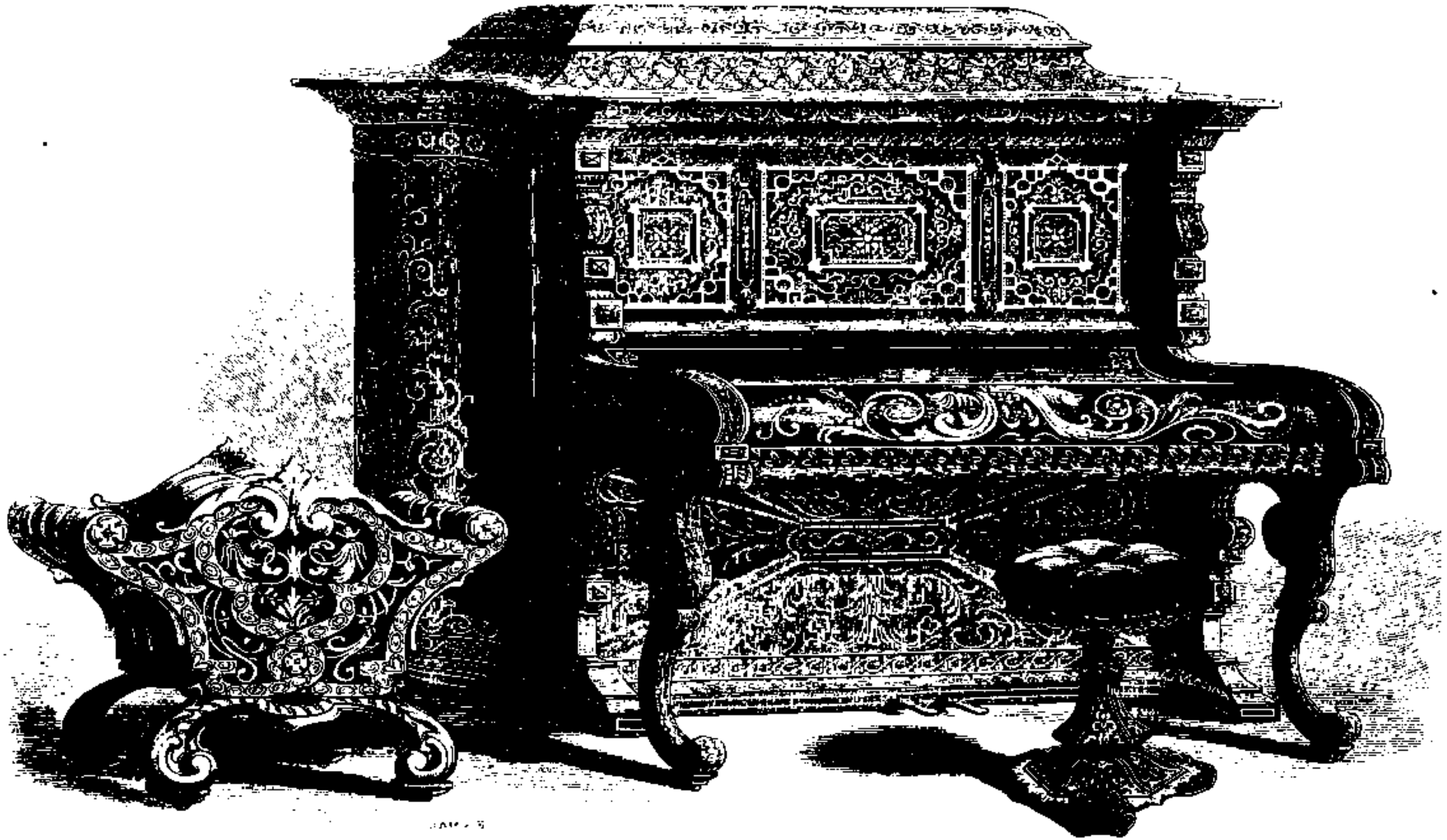
CL. XXV. 23.—LARGE WINE COOLER, IN PORCELAIN. A. B. AND R. P. DANIELL, 129, NEW BOND STREET.



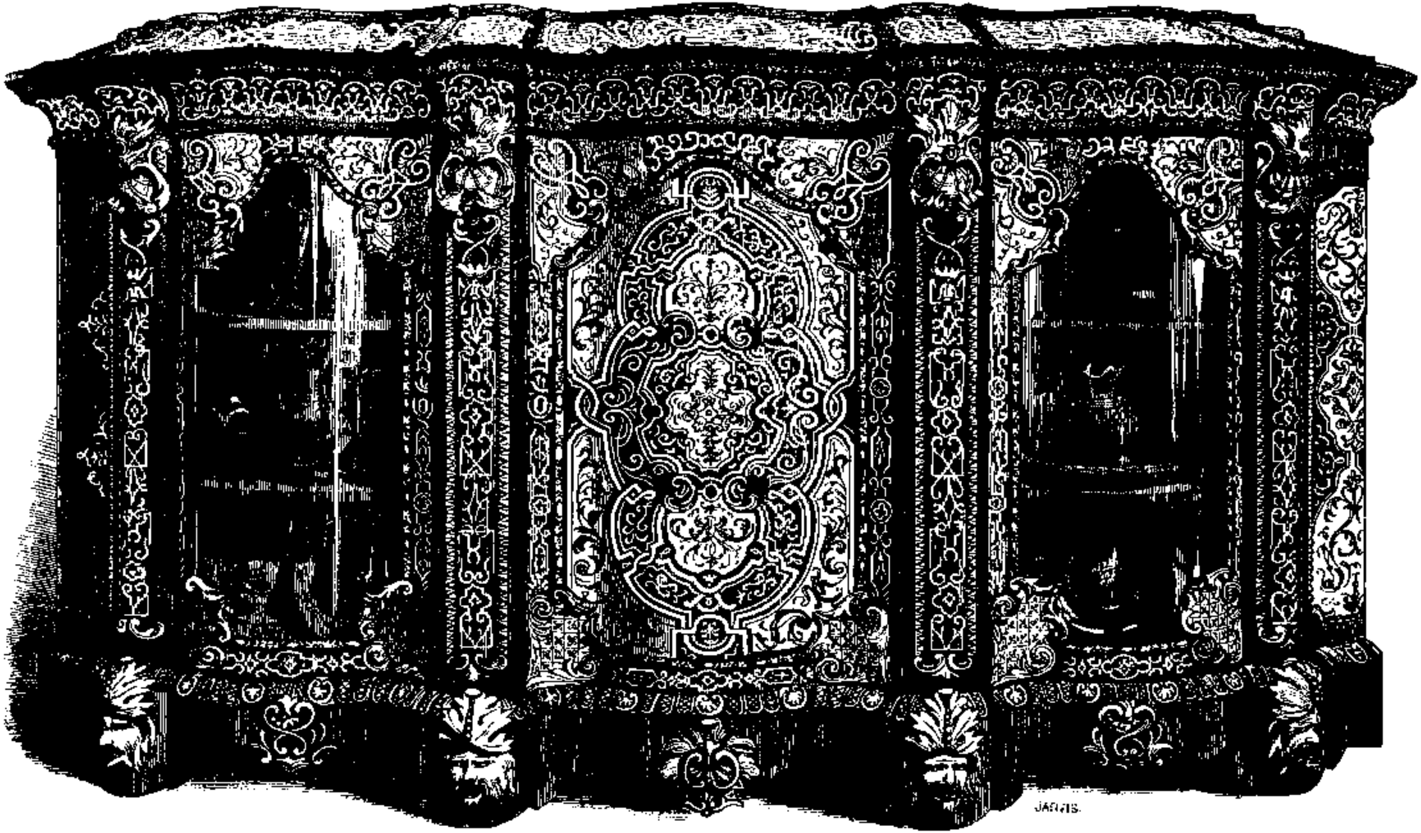
CL. XXVI., 177.—JEWEL CASKETS, ETC., IN OR-MOLU. S. WERTHEIMER, GREEK STREET.



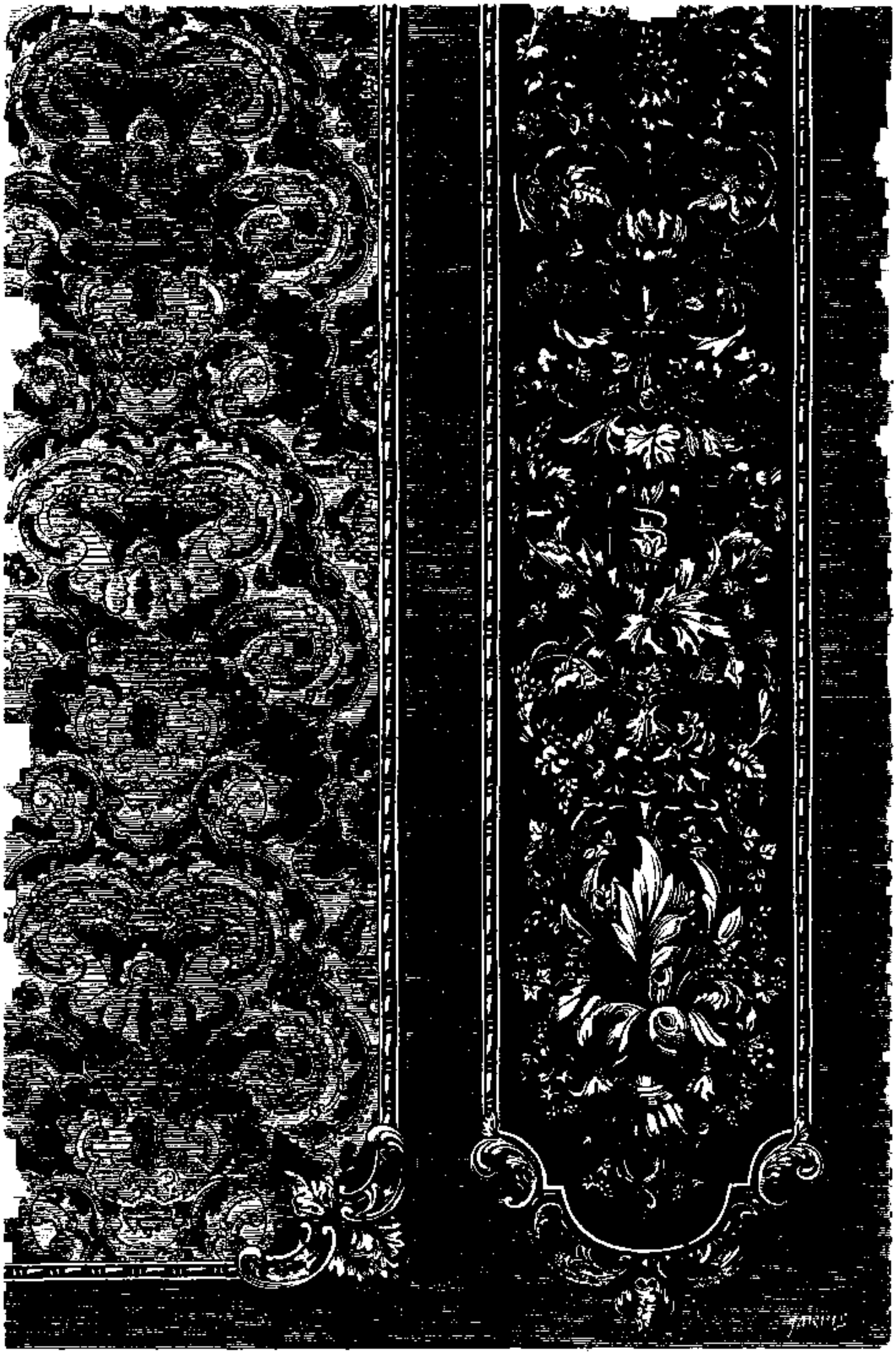
CL. XXVI, 187.—PAPIER MACHE CHAIR AND STOOL, VICTORIA REGIA COT, AND TEA TRAY
JENNENS AND BETTRIDGE, HALKIN STREET WEST, AND BIRMINGHAM



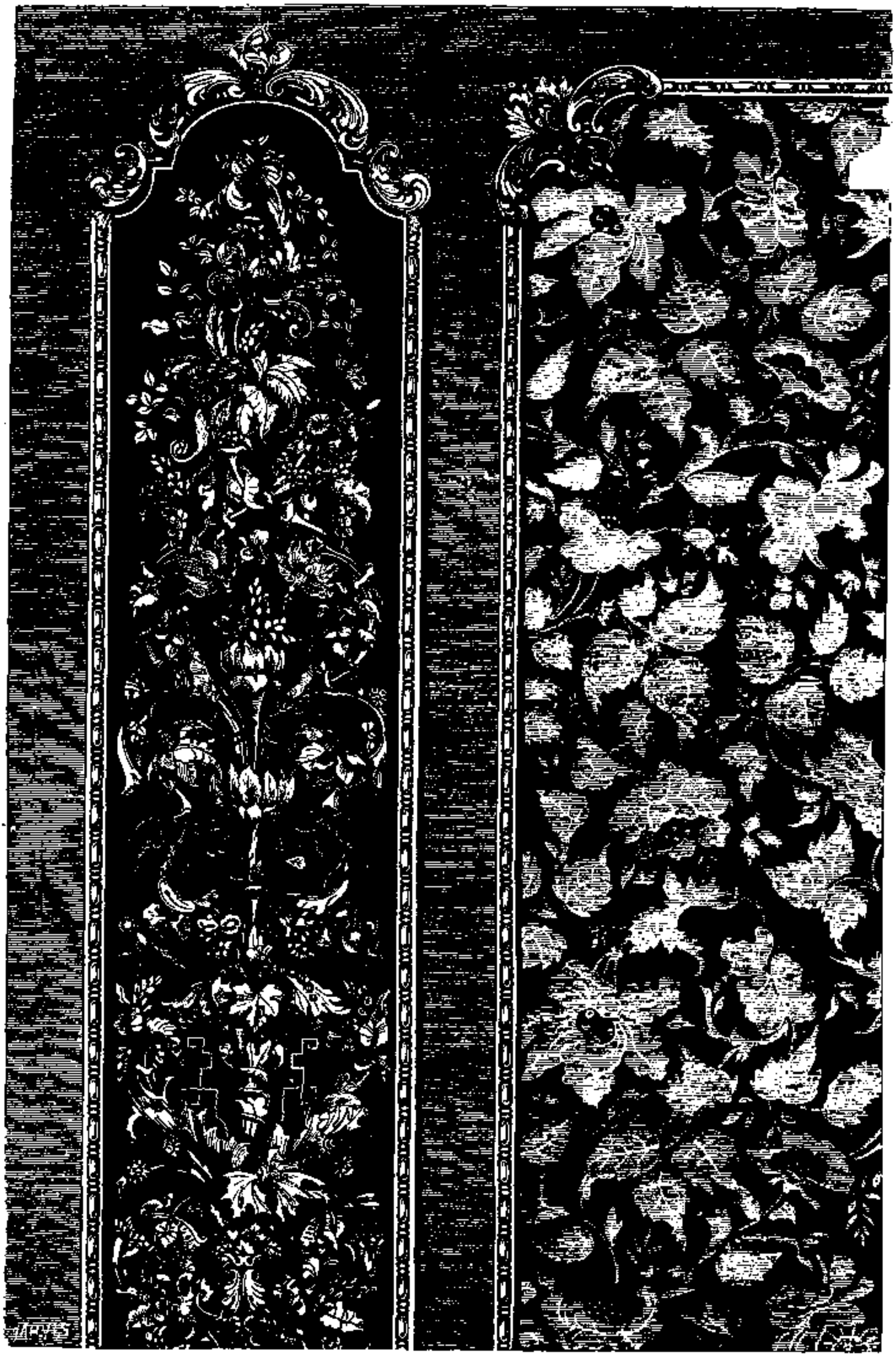
404. CL. XXVI., 187.—PIANOFORTE, IN PAPIER MACHÉ, DECORATED IN THE ITALIAN STYLE, THE MECHANISM BY DIMOLINE; MUSIC STOOL AND CANTERBURY, IN PAPIER MACHÉ EN SUITE. JENNENS AND BETTRIDGE, HALKIN STREET WEST, AND BIRMINGHAM.



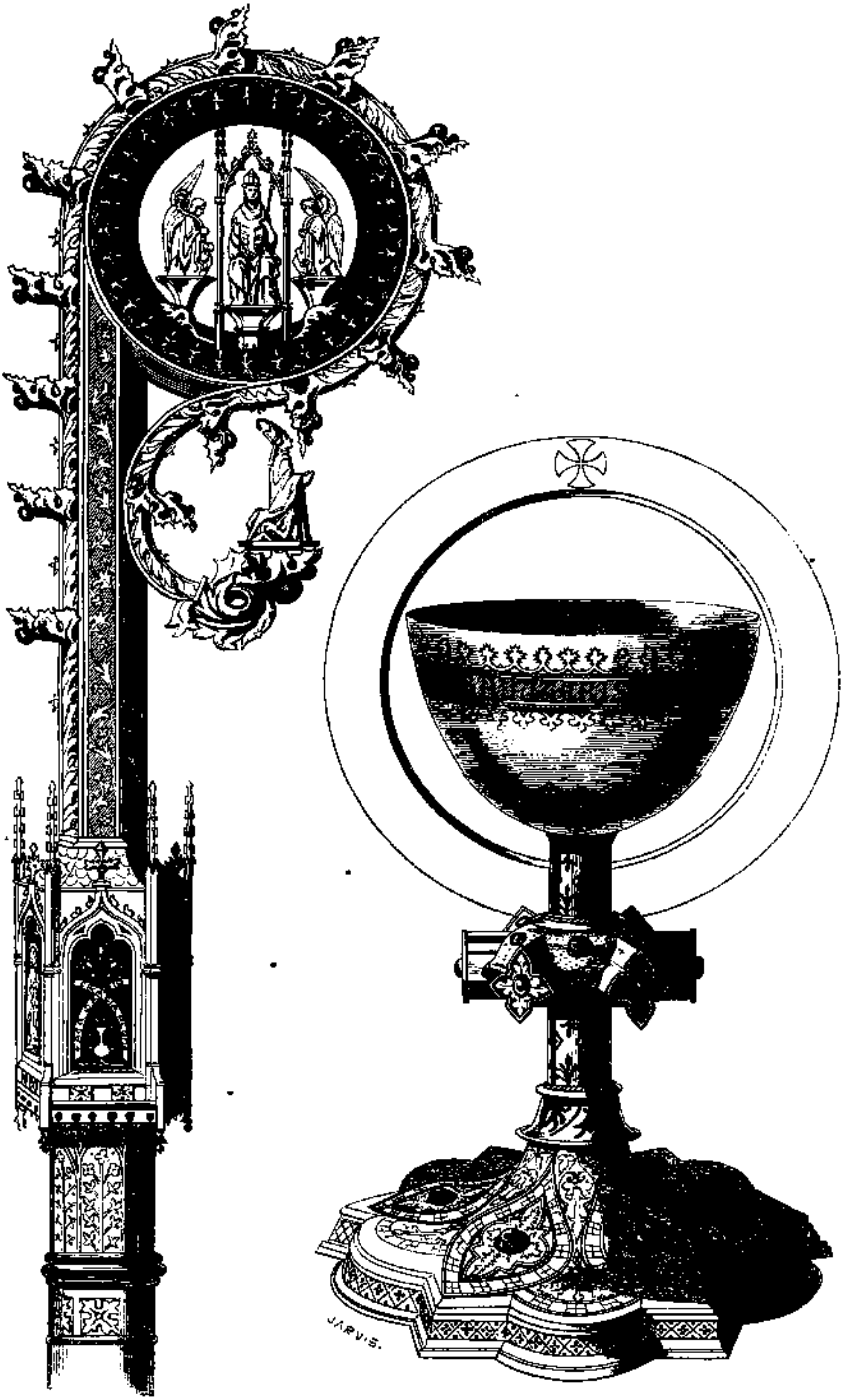
CL. XXVI., 196.—SALOON COMMODE, OF ENGLISH BUHL, INLAID WITH TORTOISESHELL AND COLOURS, WITH OR-MOLU MOUNTS. PRATT, NEW BOND STREET.



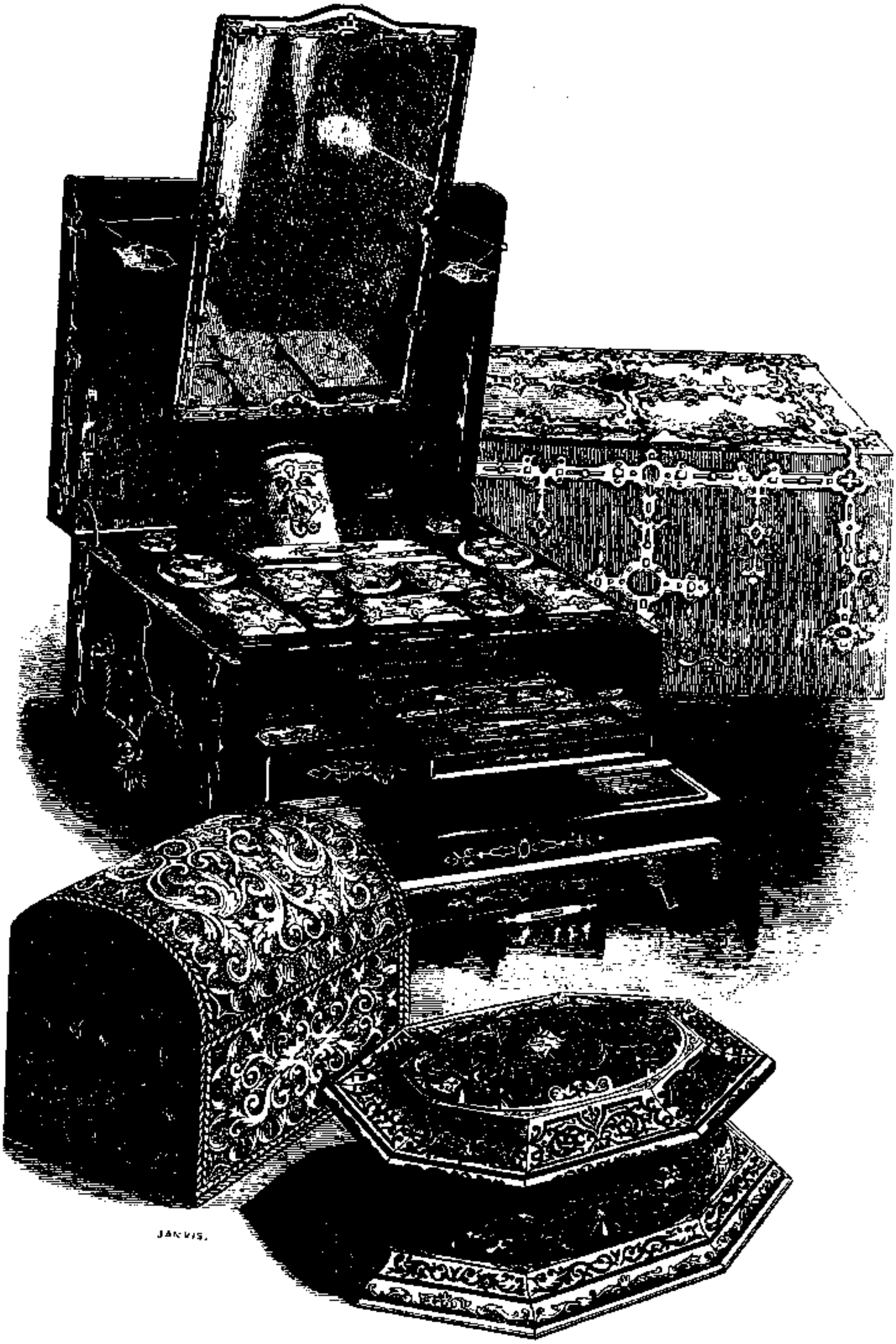
CL. XXVI. 309.—SPECIMEN OF ORNAMENTAL PAPER-HANGING. W. WOOLLAMS AND CO., 110, HIGH STREET, MARYLEBONE.



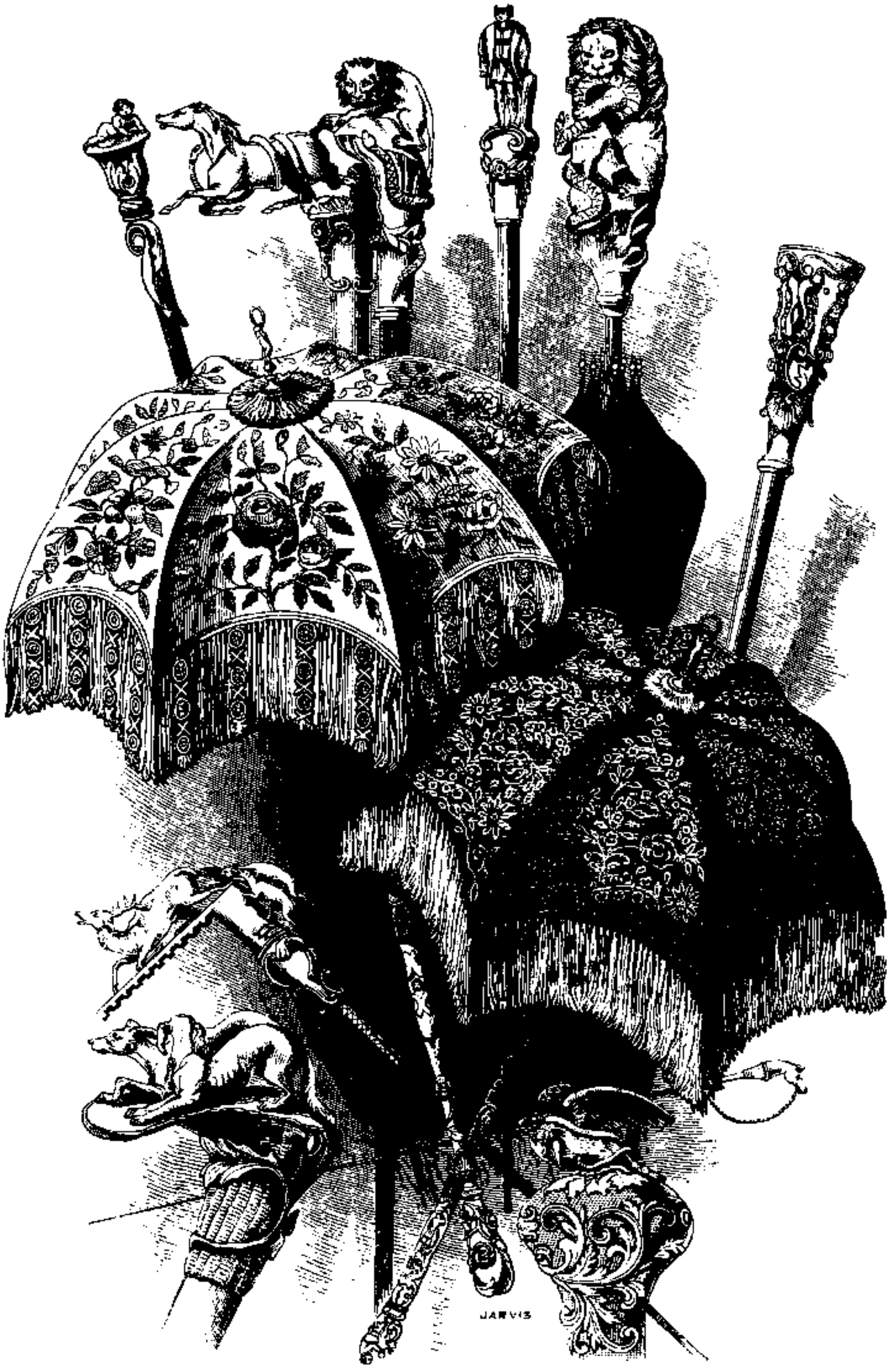
CL. XXVI. 309.—SPECIMEN OF DECORATIVE PAPER-HANGING. W. WOOLLAMS AND CO., 110, HIGH STREET, MARYLEBONE.



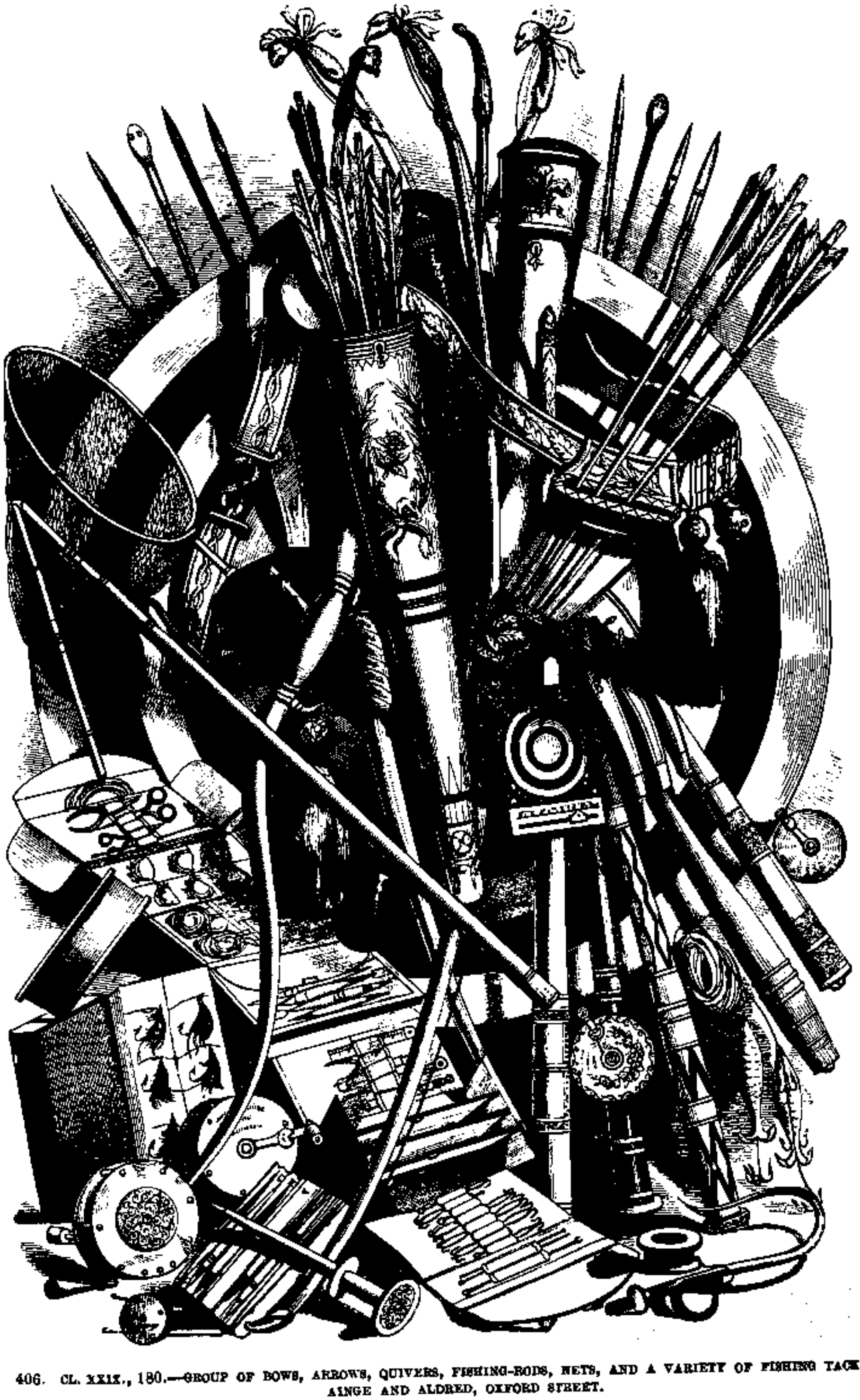
389. CL. XXVI., 532 (MEDIÆVAL COURT).—CROZIER, ELABORATELY ORNAMENTED, IN THE STYLE OF THE FOURTEENTH CENTURY; CHALICE, OF SILVER-GILT AND ENAMELLED; COMMUNION PLATE.
J. HARDMAN AND CO., BIRMINGHAM.



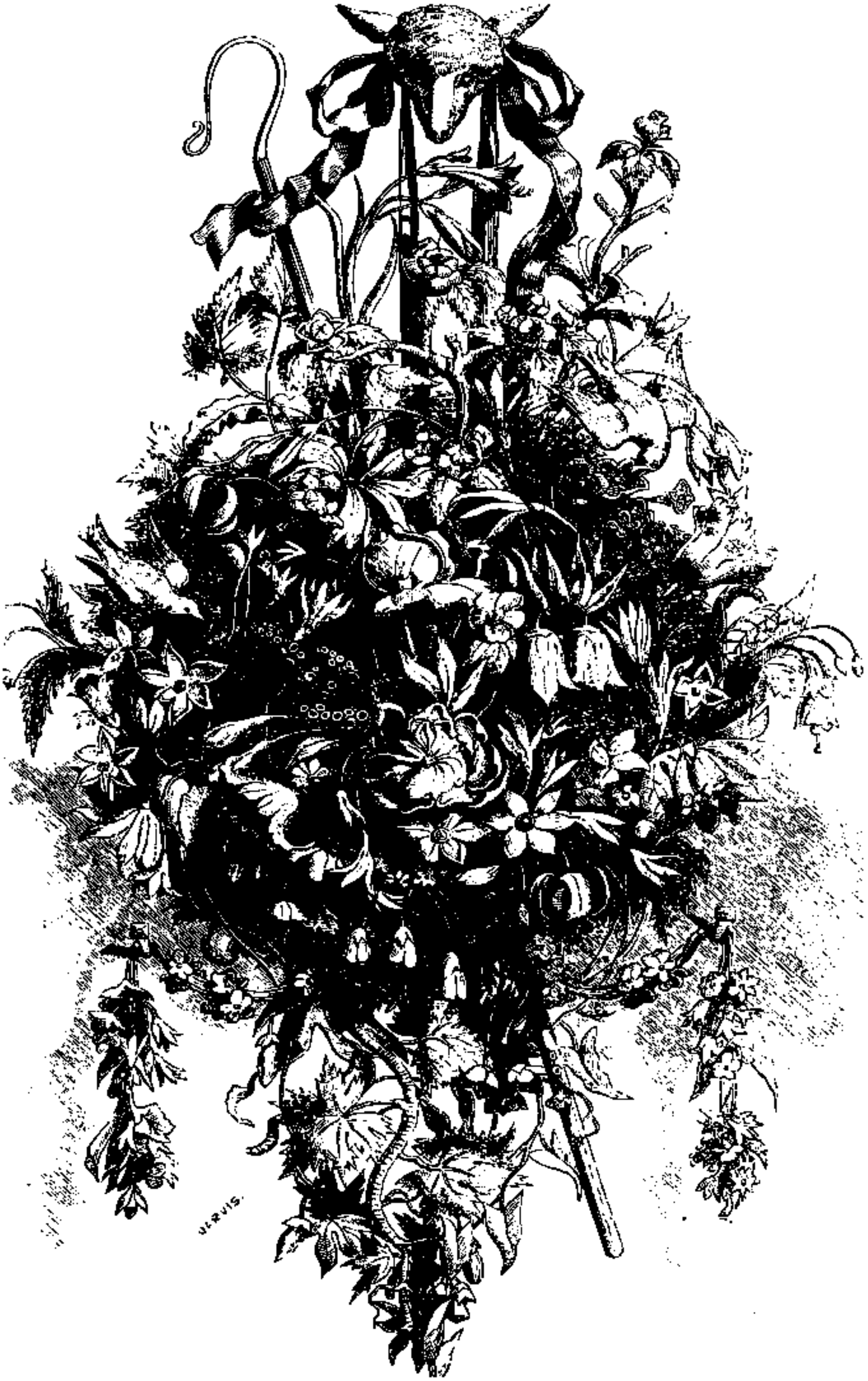
CL. XXIX. 44.—DRESSING-CASE, OF WALNUT-WOOD, MOUNTED IN THE MEDIÆVAL STYLE IN PIERCED SOLID SILVER, ETC. LEUCHARS, 38, PICCADILLY.



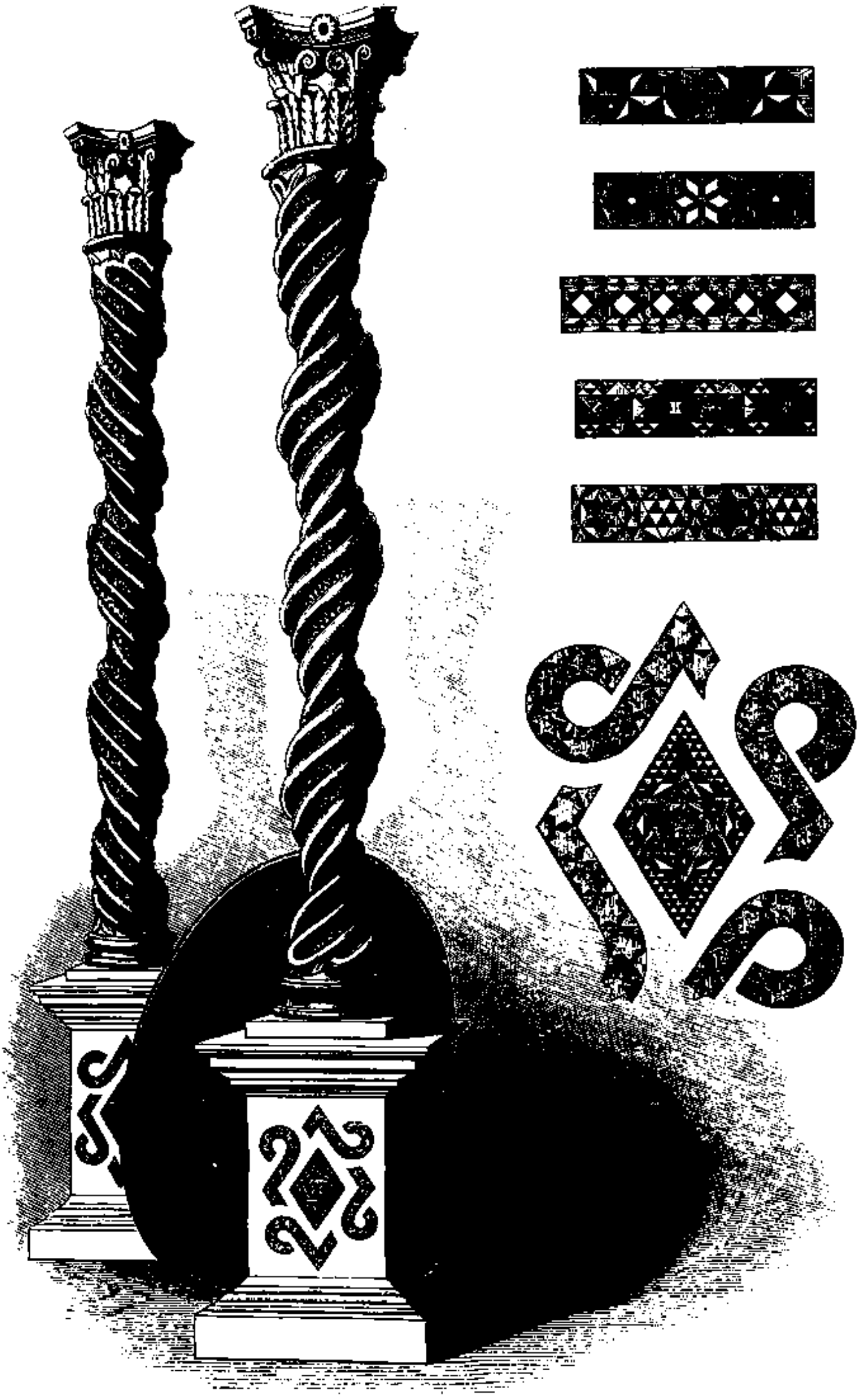
408. CL. XXIX., 136.—GROUP OF PARASOLS AND WALKING-STICKS, WITH CARVED AND ORNAMENTED HANDLES. W. AND J. SANGSTER, REGENT STREET.



406. CL. XXIX., 180.—GROUP OF BOWS, ARROWS, QUIVERS, FISHING-RODS, NETS, AND A VARIETY OF FISHING TACKLE.
AINGE AND ALDRED, OXFORD STREET.



CL. XXX. FINE ART COURT, 89.—SPRING, REPRESENTED BY THE GRAPE-BUD AND APPLE-BLOSSOM, CARVED IN WOOD. T. W. WALLIS, LOUTH.



319. CL. XXX. FINE ART COURT.—PAIR OF CANDELABRA, IN KEENE'S CEMENT, IN IMITATION OF MARBLE, AND INLAID WITH GLASS MOSAIC. WITH PATTERNS OF MOSAIC ENGRAVED LARGER SIZE. G. H. STEVENS, PIMLICO.

BRITISH POSSESSIONS.

INDIA.

Palanquin; showing the Mode of Conveying Travellers in India.

This plate gives a view of the mode in which travellers are usually conveyed in India, either for short or for great distances. In the former case a set of bearers of eight men, or four and four to relieve each other, will suffice for distances of eight or ten miles; but for long distances it is requisite to write to the postmaster of every station to lay a *dauk* of bearers, as it is called, to any other station, when the traveller will be conveyed at the rate of between three and four miles an hour, at an expense of about a shilling a mile. The bearers are usually satisfied with a less amount of clothing than is represented; but these may be considered to be a set in private service. Other kinds of palanquin are without any cover over head, and have only low sides, such as the *nalkee*, exhibited by the Nawab Nazim of Moorshedabad. Some, called tonjons, are like the body of an open sedan-chair: a silver model of one was exhibited by the Rao of Cutch. Sick soldiers are carried to hospital and on line of march in light palanquins with red calico coverings, called *doolies*. In addition to the bearers for the palanquin, there are usually one or two others' to carry the traveller's baggage in light baskets swung on elastic bamboos across the shoulders; and at night one or two torch-bearers in addition.—Plate 408.

Indian Hackery or Cart.

This form of cart is common in many parts of India; simple in construction, and stronger than it looks, for, like the one exhibited in the Crystal Palace, the greater part of some of them is made of strong and unyielding bamboos. The very loose way in which they are put together enables them to give more readily to the inequalities of their cross-country roads, though the creaking of the wheels is neither useful nor agreeable. Rude as these carts are in make and primitive in construction, they are not very unlike those to be seen even in the present day in France, and are greatly preferable to the carriage of goods on bullocks, which still prevails to a great extent by means of brenjaries in the central parts of India.—Plate 326.

Model of a Cargo-Boat as used on the Ganges.

The cargo-boat of the Ganges is as primitive looking as the hackery of the highways of India, and often seems like one of their native huts, which from the falling in of the banks was floating over the surface of the stream. This is from the sides being formed of bamboos and matting; the sloping roof of thatch, surmounted by a deck of bamboos, upon the top of which sits the helmsman turning the unwieldy rudder. One of the head men is usually at the prow with a long pole, with which he measures the depth of water or keeps the boat off sandbanks. Besides being rowed, these boats are often towed up the rivers, or sail up when the wind is fair. At other times they may be seen floating down the river like huge rafts. These boats do not exhibit the beautiful forms for which the sampans of Singapore, and the boats of Bombay and of the Malabar coast, were conspicuous.—Plate 327.

Camel-Saddle, Embroidered, &c.

This camel-saddle, silver mounted and richly embroidered, sent to the Exhibition by the Maharajah of Jodhpore, was a specimen of costliness of material and taste in design so profusely exhibited in the Indian department. The camel-saddle is not much used in India generally; but in the dry climate of Rajpootanah a fine breed of suwere, or riding camels, is reared. They are comparatively pleasant in their paces, and go long journeys with little food in a short space of time.—Plate 316.

Camel-Saddle and Mounted Gun.

This camel-saddle, with a gun mounted upon it, which was so conspicuous an object near the Transept, with its scarlet covering richly ornamented with embroidery, is now in the museum of the East India Company. It looks more formidable than it probably is in modern warfare, but the rapidity with which a body so armed could be conveyed from one part to another might make them occasionally of value; hence camel corps have sometimes been established.—Plate 317.

Group of Indian Jewellery, &c.

This plate represents some of the articles which excited so much attention and admiration in the jewel-cases of the Indian department, from the lavish way in which the richest materials and the choicest jewellery were expended on the trappings of a horse; while others were equally admired for the exquisite skill of the workman and the beauty of the designs by the artists, as displayed in the jewelled caps of jade and agate, the enamelled silver, the exquisite chains of Trichinopoly and Vizianagram, and the filigree-work of Dacca and Culbeh.—Plate 291.

Model of a Rath, of the Form used for Mahratta Ladies, from Nagpore.

In nothing do the natives of India differ more from the inhabitants of Europe than in their carriages. In the first place, bullocks are universally used instead of horses, but choice breeds, as those of Guzerat, are alone employed. The pace is much better than we should expect from the usually slow-paced bullock. These four-wheeled carriages are, moreover, covered with scarlet or crimson cloth, and shut in with thick curtains, the whole embroidered and fringed as well as ornamented with stars, flowers, and even small looking-glasses.—Plate 328.

Model of a Mahratta Carriage.

The reroo, a Mahratta carriage without any covering, is well calculated for the Mahrattas themselves to take the air, though they are also great horsemen. This carriage is equally well covered and cushioned, and like all such things, in use by the wealthy of the East, is richly ornamented with embroidery and deep fringes.—Plate 329.

GROUP, REPRESENTING THE METHOD OF DRAWING WATER IN INDIA.

This plate represents an agricultural process, which is as important in a country like India as draining is in England. Though India is generally spoken of as a tropical country, and as being inundated with rains, it would be probably more correct to consider it as suffering more frequently from drought than from excessive moisture; for though the rains are heavy during their seasons, there is a long period between the cessation of one and the accession of the usual wet season, when irrigation is necessary both for sowing or for saving a crop. Various methods are adopted for raising water, as may be seen in practice both in Egypt and in Persia. The mode represented here raises a large quantity of water, but the expenditure of power is great, and sometimes even a second man is required to draw in the water when it reaches the top; but in this there is a leather tube attached to the bottom of the great water-bag, which is drawn over the lower cylinder, and allows the water to run into the reservoir when the water-bag is raised high enough above it.—Plate 356.

HUNTING LEOPARD AND CARRIAGE.

The cheeta, or hunting leopard, is the only one of his tribe, with the exception of the cat, which has been sufficiently trained to be made use of by man. It is fed, but kept in confinement, like a sporting dog, and when required, is taken out on a cart, and confined by a rope from the cart, which is tied to a strap round his loins, at the same time that he is blindfolded until he arrives within sight of the game. On being let loose, he first proceeds stealthily, taking advantage of any cover that may lie between him and a flock of antelopes, and then, by a few powerful bounds, he lessens the distance between him and the game, which he soon runs down, and disables with a blow of his paw. If he should fail in his attempt, he returns sulkily to his keeper, but is ready for whatever game may next come in view.—Plate 355.

ARTICLES omitted in the CATALOGUE of the INDIAN DEPARTMENT, as given in the ILLUSTRATED CATALOGUE, vol. ii., pp. 857 to 957.

The Catalogue of the Indian Contributions to the Great Exhibition, extensive though it is, was only an abridgment of that which was prepared in manuscript previous even to the opening of the Exhibition, and before many of the things had arrived which were recorded in it. This is easily accounted for, from the lists having been prepared from the invoices as they arrived by the overland route, and the several articles arranged under the thirty heads into which it had then been recently proposed to divide the Exhibition for the convenience of examination by the several juries. In abridging many of the detailed lists it was never intended that the contributions from any part of the Indian Empire, or the names of any of the contributors should have been omitted. But it is evident that no names could be inserted except those which were included in the lists or invoices sent from the several Presidencies. But even in these the names of contributors are frequently not mentioned, and it has only been from an examination of the labels on some of the specimens that the names of contributors have been ascertained, and in several cases Prizes and Honourable Mention awarded. But in the lists of the contributions from the Madras Presidency, though those from the Rajahs of Travancore, of Calicut, and of Vizianagram, along with those purchased by the several Government Committees, no mention is made of any contributions from His Highness the Nizam of Hyderabad, or from his minister Siraj-al-Moolk Buhador, nor of any from the Commissioner of Mysore, nor of any from Cochin or Coorg. It is probable that this was owing to the articles themselves not having been sent through the Madras Central Committee, or to the territories not being considered as properly within the limits of the Madras Presidency. It was not until very nearly the close of the Exhibition that a list, sent privately by Major-General Fraser, of the articles contributed by Siraj-al-Moolk was received by the officer in charge of the Indian department. Subsequently, in consequence of having been written for at his suggestion, a second list was obtained of the articles contributed by H. H. the Nizam of Hyderabad. These, as was well known, were numerous, though it was impossible, from the want of names, and, in many instances, of labels, to know to whom to refer them. This difficulty was increased by the external numbers affixed having been duplicates, from 1 to 23, of those used by the Madras Central Committee. The Custom-house officers, however, attached a separate number to each box, made a rough list of their contents, and attached small labels to the several articles. By these numbers only were these articles for a long time recognised by the agent, and when the lists arrived they were referred by them to their rightful owners, as far as the nature of the lists would allow, because some of them were more detailed than others. But as all the articles have now been dispersed, it seems unnecessary to give a detail of those sent, especially as the same effect nearly may be attained by a more satisfactory process, that of publishing an account of the proceedings adopted by the Nizam's government, as well as of the British officers employed within that territory in forwarding the objects of the Great Exhibition. This plan, moreover, has the advantage of giving a more detailed view of the natural products and manufactures of the Nizam's territory than has been elsewhere published; at the same time, by adding a star to the names of the articles a good idea may be formed of the liberal extent of the contributions sent by the Nizam and by his minister, and of the active concurrence of Major-General Fraser, and the other British officers.

Following these lists is a statement of the contributions received from the Commissioner of Mysore, as well as from Cochin, which were addressed to J. Loch, Esq., one of the Directors of the East India Company. A Coorg dress and arms, which were exhibited in the famed Indian tent, are not mentioned in any of the lists received.

Correspondence respecting the Collection and Transmission of Articles for the Great Exhibition from the Territory of H. H. the Nizam of Hyderabad.—Proceedings of Madras Central Committee.

Hyderabad, Residency, 27th May 1850.

Sir,—I have the honour to acknowledge the receipt of your letter, No. 42, under date the 18th instant, and beg that you will be so good as to inform the Madras Central Committee that I avail myself with great pleasure of their proposal to place themselves in communication with me, and to afford me their assistance, in connection with the arrangements to be made for the transmission of articles from the Hyderabad territories connected with the national Exhibition of 1851.

2. I beg to enclose copies of the papers noted in the margin* for the information of the M. C. C., and shall have the honour of addressing you further as soon as a Committee is formed at Secunderabad, composed of Dr. Geddes as president, and Captains McGoun and Buckle as members, to whom I have proposed to take upon themselves the duty of receiving and classifying the different articles that may be received from the country for transmission to Madras.

3. His Highness the Nizam's Government has professed

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* Secretary to the Government of India to the Resident, No. 396, 15th March 1850.

Officiating Secretary to the Government of India to the Resident, No. 1857, 17th May. With an enclosure.

List of articles of produce and manufacture procurable from that part of the territory of H. H. the Nizam, with the Godavery and Manjerah for its Northern, the Toombuddra for its Southern Boundary.

Letter from D. Walker to the Resident, 13th May 1850.

Letter from D. Headley to the Resident, 17th May 1850.

Captain Davidson's list of rare, curious, and valuable articles procurable in the Hyderabad territory.

its intention of aiding us in the object in view, and has offered to place at my disposal, to the extent of 5,000 rupees, for the purchase of articles that may be required; besides sending some articles on its own part, for which it is stated that the value will not be demanded, and which are not intended to compete for the Prizes that may ultimately be awarded.

J. S. **Fraser**, *Resident.*

To E. **Balfour**, *Esq.*,
Secretary Madras C. C. Madras.

From the **Secretary** *to the* **Government** *of* **India.**

Fort William, 15th March 1850.

Sir,—I am directed by the Governor-General in Council to transmit for your information the accompanying copy of a printed despatch from the Honourable the Court of Directors, with its enclosures,* respecting the proposed Exhibition in London in 1851 of Works of Industry and Art of all Nations.

2. The Governor-General in Council is desirous that you should carefully explain to His Highness the Nizam the object and scope of the proposed Exhibition, and if His Highness should evince any disposition to aid the undertaking, by the transmission to England of any of the products or manufactures of his own territories, you are requested to afford him all the encouragement and assistance in your power.

3. It will be desirable that His Highness' contributions should be limited to such articles as may be peculiar, either as respects their origin, or their superior excellence, to His Highness' own territories,—adequate measures, it will be observed from the "Calcutta Gazette" of the 1st instant, having been already taken to procure ample supply of the general productions and manufactures of the country, from every part of India which is comprised within the British dominions.

4. It will be advisable that whatever His Highness may determine to send should be despatched to Madras, so as to reach that place by December next; and the Madras Government, on being duly advised by you of the number and contents of the packages, will undertake to forward them to England. They will be despatched to the same address as those sent by the Madras Government on its own account, each package being specially marked as containing articles sent by His Highness the Nizam.

(Signed) H. M. **Elliot**,
Secretary to the Government of India.

To the Resident at Hyderabad.
Foreign Department.

(True Copy.) **Cuth. Davidson**,
Officiating Assistant Resident.

From Surgeon **Walker**, *on Special Duty.*

Wurrungul, May 13th 1850.

Sir,—I have the honour to acknowledge the receipt of your letter of the 3rd of May, together with its enclosures, as per margin,†—all referring to the Great Exhibition of the Works of Industry and Art, to take place in London in 1851.

2. I observe from the letter of the Supreme Government, that such articles as may be peculiar, either as respects their origin, or superior excellence, to His Highness the Nizam's dominions, are alone required.

3. It is almost unnecessary to point out that this injunction will contract the collection within very narrow limits—for enclosed as the Nizam's country is, in a great measure, by the British territory—there results a similarity of population, climate, and soil, not favourable to the development of peculiar productions whether of nature or art.

4. I shall mention, however, some articles, a few of which are peculiar to the Nizam's country, which might possess interest, or at all events serve to illustrate, its resources both natural and artificial.

a Iron ores of various kinds.
b Copper ore.
c Amethysts, garnets, corundums, and potstone.
d Tobacco, from Koheir, celebrated in Southern India.
e Some gums, dyes, and medicines.
f Specimens of woods.
g Steel from Konasamoondrum, peculiar to H. H.'s dominions, of which the greater part is exported to Persia and Syria for the manufacture of sword-blades.
h Beder ware from Beder (also peculiar).
i Specimens of the Tassa silk manufacture.
j Wurrungul carpets.
k Specimens of the manufacture of fire-arms and daggers.
l Specimens of pottery from Rachore with the clay.
m Neermul toys.

All these are procurable at a trifling cost. Specimens of the mineral and vegetable productions I can supply, and also of the greater part of the manufactured articles mentioned above.

(Signed) A. **Walker**,
Surgeon, on Special Duty.

(True Copy.) **Cuth. Davidson**,
Officiating Assistant Resident.

To Major-General **Fraser**,
Resident at Hyderabad.

List of **Articles** of **Produce** and **Manufacture** procurable from that part of the Territory of H. H. the **Nizam** with the **Godavery** and **Manjera** for its Northern, the **Toombuddra** for its Southern Boundary.

Minerals.

1. Diamond, model of the diamond belonging to H. H the Nizam, found some years ago at Jutpole.*
2. Coal, from Kotah, Ramgheer.
3. Saltpetre, from various parts of the country.
4. Kara neemuk, coarse—(sulphate of soda?)
5. Carbonate of soda, from the granitic country generally.
6. Common salt, from Shorapoor.
7. Amethysts, from Hyderabad.
8. Garnets, from Palooncha, agate, carnelian, and onyx beads.
9. Corundum, from Kunummett.
10. Steatite, or potstone, bulpum, or balapum, from Elgundell, Warungul, &c., vessels and images made of it. These vessels of coarse potstone are much used by the natives.
11. Potter's clay, from Bhongeer, Rachore, &c.
12. Fuller's earth, from Beder.
13. Oxidulous iron ore. from Warungul, Cummum, &c.
14. Hematite, brown clay iron ore, sand iron ore, for the manufacture of steel, yellow clay iron ore, iron pyrites, and glance iron ore.
15. Copper ore, from Yelgurup.

Vegetable Substances.

16. Rice, many varieties, barley from Maiduck, &c.
17. Millets, cultivated in all parts of the country.
18. Pulses, many descriptions.
19. Oil seeds of different kinds.
20. Alcohol and dharoo, from the Mhowa tree (*Bassia*), common towards the Godavery.
21. Opium, from the Beder districts.
22. Tobacco, from Koheir, celebrated all over the Deccan, and much prized for chewing and smoking, grown on a red soil.
23. Betel, capsicum, ginger, turmeric, coriander, cummin, arrowroot, common, grown in gardens.
24. Arrowroot, from Curcuma, grown on the banks of the Godavery.
25. Singarah nuts (*Trapa*), common in tanks about

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* These consist of Mr. Taylor's letter and of Dr. Royle's classified list of raw products and of manufactures of India

† 1. Copy of a letter of the Supreme Government, March 15.
2. Notification of the Bombay Government, with translation.
3. Letter of the Court of Directors to the Governor-General.

* A model of this diamond was exhibited by H. Piddington, Esq.

Hyderabad, and in other parts of the country, used for food.

26. Yams (jungle), from a species of Dioscorea, common in the Nizam's country.

27. Sugar, from the sugar cane.

28. Gums of various kinds, from the Terminalia Bellerica, Buchanania, Acacia arabica, Sterculia urens, and some other trees.

29. Bdellium (Googul), from a species of *Amyris* found in the jungles on the banks of the Kishna.

30. Olibanum, from the *Boswellia serrata*, a very common tree everywhere.

31. Some perfumed oils manufactured in the city of Hyderabad.

32. Linseed oil, sesamum oil, oil of the seeds of the *Verbesina sativa*.

33. Castor oil, mustard oil, oil from the mawah fruit, all prepared in the Nizam's territory. Hyperanthera moringa, Pongamia glabra, *Carthamus tinctorius*, are common productions, but no oil expressed from their seeds. From the seeds of the *Buchanania latifolia* a very good oil may be prepared. The sunflower and the groundnut are garden productions and grow well.

34. Arnatto, in gardens about Hyderabad, no use made of the seeds.

35. Aal, *Morinda citrifolia*, cultivated on the black soil (common).

36. A wild morinda, from the bark of which a dye is extracted in the Mahdapore jungle.

37. Croton plicatum (capsules), yielding turnsole (common).

38. Chirongy (*Oldenlandia umbellata*), very common about Warungul. (The name Chirongi is usually applied to the Buchanania, the Oldelandia umbellata being usually called Chaya.)

39. Myrobolans.

40. Turmeric.

41. Indigofera cœrulea. (One of the common indigo plants).

42. Wrightia tinctoria and *Barleria Prionitis*, indigo of a coarse kind manufactured from these plants.

43. Babool.

44. Acacia catechu, grows, but no catechu made from it.

45. Pulas kino, *Butea frondosa*, very common, but no use made of the kino, which is also yielded by the magnificent creeper, *Butea superba*.

46. Turwur, *Cassia auriculata*, very common.

47. Pomegranate, only in gardens.

48. Senna, from the *Senna obovata*, common about Nelgoondah.

49. Colocynth, *Cucumis Colocynthis*, is very common.

50. Nux vomica.

51. Stramonium, from two species, *Datura fastuosa* and *Metel*.

52. Cassia fistula.

53. Kreyat.

54. Hemidesmus Indica; all these very common plants easily procurable, and at a very trifling cost.

55. Cotton, native of two kinds, common.

56. Hemp (*Hibiscus cannabinus*) do.

57. Sunn (*Crotalaria juncea*) do.

58. Asclepias tenucissima, from Mahdapore.

59. Bowstring hemp plant, *Sansiviera zeylanica*; grows abundantly, but no use made of the fibres.

60. The bark of several trees, and fronds of palms yield cordage.

61. Teak.

62. Ebony.

63. Blackwood (dalbergia).

64. A species of nauclea.

65. Weaver's beam tree (*Serebera swietenioides*), satin and sandal wood, bamboos and ratan.

All these woods are common in the Godavery Forest, and specimens of others may be procured; no very large teak is now procurable in the Nizam's country.

66. Decamullee (a gum resin), from two or three species of Gardenia much used in native medicine.

67. Clearing nut, common.

68. Oleum nigrum, celebrated as a cure for beriberi, from the seeds of the malkunganee, Celastrus nutans.

Animal Substances.

69. Horns of deer and buffaloes.

70. Tusser, or jungle silk, from the Godavery forests.

71. Wax and honey do. do.

72. Lac do. do.

73. Blistering beetle (*Mylabris cichorei*), Hyderabad.

74. Civet, from *Viverra civetta*, found in the jungles of the Godavery.

Manufactures.

75. Cotton cloths of many descriptions.

76. Silk cloths and jungle silk cloths.

77. Daggers and bullum spear heads, from Elgundel.

78. Pistols and matchlocks, from steel from Konassamoondrum.

79.*Sutrunjees of worsted, cotton, silk, from Warungul.

80.*Cotton ghalecchas (carpets), from many parts of Hyderabad, and woollen and silk carpets from Warungul.

81. Lac ornaments, from Hyderabad.

82. Bangles, (bracelets and armlets; the ground prepared with a composition of shellac and the salt of the lake of Lonar, a carbonate of soda.

83 Lacquered toys, from Neermul.

84. Coarse paper.

85. Soap.

86. Dyed leather (red).

87. Pottery, from Rachore and Bougheer.

88.*Armourer's and cutler's sharpening wheels, of lac with pounded garnet or corundum, from Cummum.

89.*Beder ware, from Beder.

(True Copy.) CUTH. DAVIDSON,
Officiating Assistant Resident.

Arms, &c. sent.

Dagger and sword, gold and silver mounted, with belts, matchlocks mounted with silver hoops, silver powder-flasks and bullet-pouches, as worn by the Arab soldiers at Hyderabad.

Kuttar and Peshkubz daggers, knife, and sword, made of Konasamundrum steel, and finished in the Hyderabad bazaar.

Shield of Samber skin, made at the fort of Inktyal.

Native saddle (Kogheer), of yellow cloth, with saddle-cloth of light yellow velvet, and caparisons embroidered with silver, as used by the body-guard (Khas Risalah) of His Highness the Nizam.

A silver filigree work-box.

From Surgeon BRADLEY, *on Special Duty.*

Camp Mulcapoor, May 17th, 1850.

Sir,—I have the honour to acknowledge the receipt of your letter, No. 580 of 1850, bearing date the 3rd instant, with enclosures, requesting I would take into consideration the subject therein referred to, and that I should offer such suggestions as I might deem fittest, for carrying into effect the object desired by the British Government.

2. In obedience to your wishes, I have now the pleasure of offering, to the extent of my own observation, such an exposition of the resources of His Highness' territories, as I conceive best calculated to meet the exigencies of the case contemplated by the Governor-General in Council; the raw and manufactured productions of which, I venture to say, need not fear comparison with the general produce of any part of India.

3. I will commence with a consideration of some of the more valuable vegetable products in universal demand, as most appropriate to a country essentially agricultural.

Vegetable Products.

4. Cotton.—The soil and climate is well adapted not only for growing the short stapled indigenous variety, but also, as I have successfully proved, the finer varieties of America. 5. It was the Berar cotton that formerly was exclusively employed in the manufacture of the finer Piece Goods of Madras.

6. Sugar.—The sugar-cane arrives at great perfection

in the Dowlutabad Circar and other localities: Sugar of excellent description is made at Phoolmurree, Rouzuh, Gunnooree and Kingaon.

7. Opium.—The poppy has great breadth of cultivation, and the drug is the most remunerative return of the whole harvest; it finds its way into the market as Malwa opium.

8. Tobacco is largely grown, but generally very rank in flavour and coarse in leaf: exceptions are observed at a village near Hingolee called Rohere (or Koheir), and other places, where particularly fine varieties are met with.

9. Wheat.—There are three sorts grown—the Kuteah covers large tracts of land, and is the common variety. The Poteah, and the Bunsee or black-bearded variety, are raised in moderate quantities; the latter affords a species of vermicelli made principally at Rouzah.

10. Rice is little grown towards the North and West, and, with the exception of a small amount raised on the flooded lands under the walls of Aurungabad, is considered of such a superior description, as to be annually transmitted to Hyderabad as a delicacy.

It would be a waste of time enumerating all the grains and pulses, but a collection of all such as form the diet of the people, would be, as Dr. Royle very justly remarks, "a very interesting feature of any general collection of agricultural products."

11. In connection with the above I would recommend transmitting a complete series of models of agricultural implements—say of half the natural dimensions—so that minds at home may be disabused of a portion of that prejudice which has taught them to believe "that nothing can exceed the rudeness and inefficiency of the Hindoos' implements of agriculture."

12. The next point for consideration refers to Natural Mineral Productions. For these we have saltpetre from Berar and the neighbourhood of Gaudapoor, procured from the scrapings of old walls and roads. Natron from the lake of Lonar, and another species of impure soda from the brine springs of Dyundah, pipe-clay from Beder, and red ochre from Jaulnah and Dowlutabad Circars.

Natural Vegetable Productions.

13. Zedoary, or wild Hulklee, from the Gawil hills; Salep misree, from the Ajuntah hills; Gum olibanum, from the Boswellia serrata, Gawil hills.

14. Bdellium.—Gum and balsam of the Amyris commiphora, Gawil hills; Baubool gum, Acacia arabica, Berar; Gums of the Feronia elephantum and Buchanania latifolia; Oils from the seeds of the Dalbergia arborea, called Kurrung ka Tel, from the seeds of the Celastrus paniculata, known as the Malkamna ka Tel: the Andropogon Irasacusa grass, yielding the well known Rowsa ka Tel, or grass oil.

15. Dying Stuffs.—Safflower, Carthamus tinctoria: Grislea tomentosa, Butea frondosa, Dalbergia Oojeinensis: Rottlera tinctoria: Morinda citrifolia; Tamarindus indica; Terminalia Bellerica; Asclepias gigantea; Euphorbia Tiraculli.

16. Tanning.—Bark of the Baubul, Cassia auriculata, Dalbergia Oojeinensis, Conocarpus latifolia, Terminalia alata.

17. Charcoal of a fine description is procured from the Asclepias gigantea, and from Euphorbia Tiraculli: the commoner kind is afforded by Baubul and other species of Mimosa.

18. Cordage.—Fibrous stalks of the Cannabis sativa and Hibiscus cannabinus for common purposes; whilst the bark peeled from the roots of the Butea frondosa constitutes the source of the rural cordage.

19. Medicine.—Substitute for gentian, Gentiana verticillata; substitute for sarsaparilla, Asclepias Pseudosarsæ; substitute for Jalap, Convolvulus Turpethum.

Natural Animal Products.

20. Wax; from the Gawil hills, varieties of Meloë, substitutes for the true Blister Fly, Wool, Hides.

Manufactured Articles.

21. Dooputtas, from Pytun.

22. Shaloo; cotton cloths with gold thread borders, Khun: and Davee Vustur: also from Pytun.

23. Kinkob from Aurungabad, as well as the beautiful fabrics of silk and cotton (Mushrao).

24. Embroidered shawls with gold thread, and beetles' wings.

25. Gold thread, gold wire: gold lace, and gold and silver lace from Aurungabad.

Gold and silver tissue cloth, ribbons of silk with patterns of gold and silver thread.

Embroidered shoes, slippers, bags, scarfs, and aprons.

Beetle-wing embroidery on net, dresses, and scarfs.

Twine and thread of silk and cotton, ropes of hemp, cotton, and such as are used for the commonest agricultural purposes.

26. Coarse canvas and Tatputtee.
27. Cotton cloths for the table and toilet—Ellichpoor.
28. Muslins from Nandair.
29. Cotton carpets, from Berar.
30 Red Kurwah, from Berar.
31. Do Sootee, from Berar.
32. Kaddee, from Berar.
33. Cotton tape, from Berar.
34. Country blankets.
35. Tutenag vessels, from Beder.
36. Lacquered toys, from Neermul.
37. Children's toys, from Ellichpoor.
38. Paper, from Kaghuzwarree and Berar.

I would also suggest that models be prepared of the various implements and machinery used in the several branches of industry enumerated, exemplifying the mode by which the raw material of either silk or cotton is worked up into the fabrics I have specified, as well as showing the process by which paper and sugar are made.

I am prepared to construct the models should you decide upon adopting my suggestion, and should hope to collect an ample supply of all the articles I have above specified, in the event of His Highness the Nizam feeling inclined to aid this great work by his support.

(Signed) W. H. Bradley,
Surgeon on Special Duty.
(True Copy) Cuth. Davidson,
Officiating Assistant Resident.

To Major-General Fraser,
Resident at Hyderabad.

List of Rare, Curious, and Valuable Articles procurable in the Hyderabad Territory.

39. Tinsel work and embroidery of Aurungabad.

40. Sarees, and Doputtas, of Monghy Pyttun, Jalnah, and Bheer.

41. Sailahs of Nandair.

42. Lacquered playthings of Neermul.

43. Steel of Kona Summoondhur in the Wurungul District.

44. Specimens of Beder work.

45. Roheir tobacco.

46. Cloth both fine and course of Culburgah, Narainpett, Allpoor, and districts between the Beemah, and Kistnah.

47. Specimens of different kinds of woods.

48. Specimens of different kinds of minerals.

49. Models of agricultural implements.

50. Handkerchiefs of Nelgoondah and Davomcondah districts.

51. Bracelets of Hyderabad.

52. Curious arms, especially daggers, manufactured at Hyderabad, of the Kona Summoondhur steel.

Ten swords, Puttar, Khaundas, Syeph; broad-sword, straight, and scimitar-shaped, some with the blades inlaid.

Spears, and chain-armour cuirass.

(True Copy) Cuth. Davidson,
Officiating Assistant Resident.

Resolved, that the best thanks of the Committee be offered to General Fraser for the above communications regarding the products of the Nizam's dominions, and that the same be recorded. The Committee will be very happy to receive the articles and transmit them to England.

From Captain **Meadows Taylor**, *on Special Duty.*

Camp Jourghee, 3*rd June* 1850.

Sir,—I have the honour to acknowledge the receipt of your letter of the 29th ultimo, No. 679, with its enclosure.

2. With reference to the second paragraph of your letter, I beg to refer you to the accompanying list, which embraces all the articles of local product and manufacture which are obtainable in the Shorapore district itself. I have classed these in reference to the lists in the printed circular previously forwarded to me, and shall be most happy to forward to you any specimen of articles which you may consider worthy of being sent for the purpose required.

3. I may state in reference to the local manufactures of the Shorapore district, that they are entirely of a homely description, suitable to the consumption of the middle and lower classes of the people, consisting of khadies, jhote, coarse and middling turbans, salas, roomals, sarees, dhotees, chintz for razaees, and floor-cloths of permanent dyes, purrum for bags, and small tents, &c., according to the list;—but I am not aware that they present any remarkable peculiarities of dye or manufacture to distinguish them from the same descriptions of cloths elsewhere.

4. All the finer descriptions of silk and cotton cloths are imported into the Shorapore district from Godwall, Narainpett, Dhanoor, Gulburgah, &c., where there are extensive manufacturing establishments; and most of these fabrics, as well from the fineness and strength of the texture, the beauty and durability of the colours, and the excellent check and line pattern weaving, are well worthy of your attention. They are not produced in equal perfection in any other districts of the Nizam's dominions, if indeed anywhere else in India.

5. As there are agents at Shorapore from the abovenamed places, who import largely for local consumption, I could obtain from them, or direct from the manufacturers, very choice specimens of these articles, ready made, or if time were allowed, the articles could be made to order, which would perhaps insure a higher finish and worth. I have annexed a memorandum, A, of the probable prices of the number of articles I would recommend as specimens of these manufactures, which have a deserved celebrity, and are exported to Bombay and the Southern Mahratta country in large quantities. I should have much pleasure in obtaining and forwarding to you whatever articles you may require in reference to the list now furnished.

6. I am not aware that there are any manufactures in the districts south of the Kistnah which deserve especial notice, and believe them to be generally of an ordinary description, suited to the lower and middling classes.

7. If specimens of the grains of the Shorapore district are required, I would beg to be informed in what quantity of each. With exception of the white jowaree of Amlola, &c., which is the most celebrated and beautiful as regards colour and size in the Deccan, I believe that no difference would be found between the grain of other districts and that produced in Shorapore.

8. The agricultural implements of the district do not differ from those of the Deccan generally, but models can be supplied if requisite, made on a small scale, as also models of looms, &c.

9. The cotton of Shorapore is of good quality, colour, and staple, and specimens of kuppas and rooee, might therefore be acceptable. I should be happy to add to these specimens of New Orleans and Sea Island cotton, grown by myself in the district last year on the red soil, which promises to be well adapted to both, under the mode of cultivation I have pursued. Should samples of these cottons be required, I would beg to be informed of the quantity in pounds or seers.

10. Wool is a produce of the district, of the same quality probably as that of Jaulnah and the Deccan generally. Any quantity required could be sent as well as specimens of fine and coarse cumblies.

11. Samples of the fine and coarse yarns spun by the people of the district, might also be interesting; as also of those of a much finer quality, which are spun near Dharwar and generally in the Muktul district, for the manufacturer of Narrainpett, Dharwar, &c.

12. I should be happy also to furnish specimens of the minerals as illustrative of the geology of the Shorapore district, from a collection I have made, if they are required or would be considered suitable for the present purpose.

13. I need not, probably, on the present occasion enter further into particulars, but refer you to the list annexed, for such orders as you may be pleased to give me thereon. I beg to state, however, in reference to the tenor of the despatch, enclosed in your communication under reply, that good matchlocks of a peculiar make are manufactured in the Shorapore district, as also jumbeas, knives, daggers, &c. The prices of these would be according to commission, and the amount of inlaid work, silver or gold, which, if employed at all, might be required: the price of a good matchlock without ornament, is from 10 to 12 rupees.

14. I may notice also, that fine ivory carved work can be executed in Shorapore of a peculiar and very delicate description. This consists of figures of deer and birds, flowers, as also combs large and small, cups, &c. Any orders for which would be executed with peculiar care. It would be impossible to define the prices of these articles, as they would depend upon the size and work required.

I have the honour, &c.,
(Signed) M. Taylor, *on Special Duty.*
(True Copy) Cuth. Davidson.

To Major-General J. S. Fraser,
Resident, Hyderabad.

List of Articles produced in the Shorapore District.

Shorapore District, Camp Jourghee,
3*rd June* 1850.

I. *Minerals.*

Alkalis:

1. Saltpetre, from 1 Rupee to 1—8 Rs. per mun.
2. Kharee, not sold in bazaars.
3. *Salt, common:*
   From line of salt springs, from 6 to 7 Rs. per candy of 20 mun.
   From washings of surface efflorescence, from 5 to 6 Rs. per candy of 20 mun.

Geologic:

4. Granite.
5. Sandstone.
6. Chert.
7. Limestone.
8. Breccia, &c.

And their varieties.

9. Iron Pyrites.

II. *Metals of all sorts imported.*

III. *Agricultural Products.*

Cereals:

10. Rice, from 16 to 20 Rs. per candy of 20 mun.
11. Wheat, two kinds, from 16 to 20 Rs. per candy of 20 mun.
12. Barley, from 14 to 15 Rs. per candy of 20 mun.
13. Jowaree of 5 sorts, white, red, and yellow, from 25 to 30 Rs. per candy of 1120 seers.
14. Bajree, from 28 to 30 Rs. per candy of 1120 seers.
15. Kodra, from 2 Rs. per pullah of 120 seers.
16. Kungonee, from 2 Rs per pullah of 120 seers.
17. Sawal, from 2¼ Rs. per pullah of 120 seers.

Pulses:

18. Toir, from 2 Rs. per pullah of 120 seers.
19. Moong, from 2½ Rs. per pullah of 120 seers.
20. Oorud, from 7 Rs. per pullah of 120 seers.
21. Gram, from 5 Rs. per pullah of 120 seers.
22. Mote, from 2 Rs. per pullah of 120 seers.
23. Coolthee, from 2 Rs. per pullah of 120 seers.
24. Buller, from 2 Rs. per pullah of 120 seers.
25. Lobee, from 2½ Rs. per pullah of 120 seers.

Oil seeds:

26. Till, white and black, from 5 Rs. per pullah of 120 seers.
27. Ram till, from 4 Rs. per pullah of 120 seers.

28. Ulsee (linseed), from 4 Rs. per pullah of 120 seers.
29. Kurrai, from 2 Rs. per pullah of 120 seers.
30. Castor, from 2¼ Rs. per pullah of 120 seers.
31. Umbaree, from 1½ Rs. per pullah of 120 seers.
32. Mustard, from 1½ Rs. per mun of 12 seers.

IV. *Dried Fruits and Seeds.*—Imported.

V. *Vegetable Substances used in the formation of Drinks.*—None.

VI. *Fermented Liquors, &c.*

33. Daroo from goor, 4 annas per quart bottle.

VII. *Intoxicating Drugs.*

34. Tobacco, from 2½ to 4 Rs. per mun of 12 seers.

VIII. *Spices and Condiments.*

Chillies, 2 Rs. per mun. All others imported.

IX. *Fecula, &c.*—Unknown.

X. *Sugar and Goor.*—Imported.

XI. *Gums.*—Imported.

XII. *Mucilage.*—Imported.

XIII. *Resins.*—Imported.

XIV. *Gum Resins.*—Imported.

XV. *Essential Oils.*—Imported.

XVI. *Oils and Vegetable Butters.*

Linseed oil.
Til; no separate oils made.
Ram til, generally sold at 2 Rs. per mun, mixed.
Castor.
Kurrur.
Umbaree.

XVII. *Dyes.*—Imported.

XVIII.—*Tanning Substances.*

Turwar (wild); others imported.

XIX. *Medicinal Substances.*

A variety of herbs and roots are indigenous—others are imported.

XX. *Cloth and Cordage Materials.*

35. Cotton (native), from 2½ to 3 Rs. per mun.
36. Hemp (sun), from 1 Rupee per mun.

XXI. *Timbers.*—None in the district.

XXII. *Animal Substances.*

Horns (bullock and buffalo); uncertain.
37. Sheep's wool, from 2 Rs. per mun.
Hides, raw, from 1 Anna to 1½ Rs. each.
Hides, dressed, from 2 Annas to 2 Rs. each.

XXIII. *Manufactured Articles.*

Coarse tatputtee, from 1 to 1½ Rs. per piece.

Cotton cloths:
38. Cadee, from 1 to 1½ Rs. per piece of 24 to 26 cubits.
39. Selah, from 8 Annas to 5 Rs. per piece of 24 to 28 cubits.
40. Turbans, from 8 Annas to 5 Rs. per piece of 30 to 60 cubits.
41. Roomals (head), from 8 Annas to 3 Rs. per piece of 4 to 5 cubits square.
42. Cholees or boddices, from 2 Annas to 1 Rupee each.
43. Handkerchiefs, from 4 Pice to 12 Annas each.
44. Dhotees, from 1 to 12 Rs. per piece of 20 cubits.
45. Jhotee, from 1 to 4 Rs. per piece of 24 cubits.

Sarees:
46. Plain, from 1 to 2 Rs. 4 Annas per piece of 15 to 16 cubits.
With silk borders, from 3 to 12 Rs. per piece of 15 to 16 cubits.
47. Purrum, from 5 Annas per piece of 15 cubits.

Woollen blankets:
48. Fine, from 3 to 5 Rs. of 4 to 8½ cubits.
Coarse, from 1 to 3 Rs. of 4 to 8½ cubits.
49. Cachas or waistbands, from 2 Annas to 4 Rs. of 16 to 20 cubits.

Cotton yarn:
50. Fine, from 18 Rs. per mun of 12 seers.
Middling, from 16 Rs. per mun of 12 seers.
Coarse, from 14 Rs. per mun of 12 seers.

(Signed) MEADOWS TAYLOR,
On Special Duty.

(True Copy) CUTH. DAVIDSON,
Officiating Assistant Resident.

Shorapore District, Camp Jounghee,
3rd June 1850.

1. Narrainpett, sarees, cotton:

Middling, with silk borders and ends, 7 Rs. to 12 Rs. plain, checked, and striped pattern; fine, with silk borders and ends, from 12, 25, and 30 Rs. plain, checked, and striped pattern; fine, with kullabatoon ends and silk borders, from 25 to 60 Rs. plain, checked, and striped pattern; fine, with kullabatoon ends and borders, from 60 to 180 Rs. plain, checked, and striped; plain, silk (murrees), from 25 to 80 Rs. plain and striped; silk sarees with kullabatoon ends and borders, from 100 to 250 Rs. plain and striped.

Narrainpeet, sarees, silk and cotton mixed:

Plain silk borders, from 25 to 50 Rs. plain and striped; silk borders and kullabatoon ends, from 30 to 75 Rs. plain and striped; goldthread borders and ends, from 80 to 150 Rs. plain and striped.

2. Cotton dhotees:

Cotton with silk borders, from 20 to 60 Rs. per pair, first sort, from 6 to 20 Rs. per pair, second sort.

3. Dooputtas, Muktul:

Cotton with goldthread stripes, edges, and ends, from 40 to 150 Rs.

4. Gudwal sarees.

5. Plain silk with silk borders, from 6 to 20 Rs.; checked and figured borders, from 20 to 40 Rs.; checked and figured borders, goldthread ends, from 30 to 50 Rs.; checked and figured borders, goldthread edges and ends, from 50 to 150 Rs.

6. Dhotees cotton with silk borders, from 5 to 30 Rs.; Dhotees cotton with goldthread borders, from 20 to 70 Rs.

7. Silk men's cloths, plain borders, from 20 to 40 Rs.; goldthread borders, from 30 to 60 Rs.

Gulburgah:

8. Sarees silk striped, from 12 to 40 Rs.; goldthread borders, from 30 to 75 Rs.; cotton and silk striped plain border, from 12 to 20 Rs.

9. Men's silk cloths, from 16 to 40 Rs.

10. Cholees, from 1 to 10 Rs. each.

11. Handkerchiefs, from 8 to 40 Rs. per piece of eight each.

Muktul and Narrainpett:

12. Head roomals, from 7 to 40 Rs. plain and goldthread borders.

13. Handkerchiefs, from 6 to 12 Rs. per piece of eight each.

Selas:

Dharwar, Ammerchinta, and Muktul.

14. 1st sort plain with gold edges and ends, from 25 to 100 Rs.; 2nd sort plain with gold edges and ends, from 15 to 50 Rs.; 3rd sort plain with gold edges and ends, from 5 to 25 Rs.

(Signed) MEADOWS TAYLOR,
On Special Duty.

(True Copy.) CUTH. DAVIDSON,
Officiating Assisting Resident.

To Captain M. TAYLOR,
On Special Duty, Shorapore.

Hyderabad Residency, 11*th June* 1850.

Sir,—I have the honour to acknowledge the receipt of your letter under date the 3rd instant, and to observe that, under the information given in the third paragraph, as the local manufactures of the Shorapore district do not present any peculiarities to distinguish them from the same description of cloths elsewhere, I should not consider it necessary that any specimens of them were furnished.

2. I shall have much pleasure, however, in availing myself of the offer you are so kind as to make to procure specimens of the articles referred to in the 4th and 5th paragraphs.

3. Under the explanation conveyed in the 6th, 7th and 8th paragraphs, I would not wish you to furnish me with specimens or models of the articles therein referred to; unless you have any reason to suppose that the looms used in the district of Shorapore differ from those of other parts of the Nizam's dominions. In this case it will no doubt be desirable that models of them be furnished, constructed on a moderate scale, and of a convenient size for carriage.

4. Samples of the cotton grown in Shorapore, I think, would be acceptable, and I beg therefore that you will be prepared to send them of every kind, accompanied by an explanatory memorandum of the soil on which they are grown, the prices for which they can be produced, the purposes to which they are applied, whether for home consumption or exportation, and whether the culture of cotton is susceptible of any considerable extension, beyond the quantity now produced in Shorapore and the neighbouring districts. Every information regarding the cotton produced in the Nizam's country will be considered highly valuable in England.

5. If the wool alluded to in the 10th paragraph is of the same quality as that of Jaulnah and the Deccan generally, it will be unnecessary, in my opinion, to send any; and the same remark may be made with respect to the fine and coarse cumblies made from the wool, as the manufacture of these articles probably does not differ from that of other parts of the Nizam's country.

6. Samples of the fine and coarse yarns mentioned in the 11th paragraph may be sent, if you have reason to suppose that they differ in any essential respect, or are superior in quality, to those produced in other parts of the country.

7. A collection of specimens of minerals might, I think, be sent with propriety; and if not approved by the Secunderabad Committee, with which will rest the duty of ultimate selection, it will be carefully returned to you.

8. The subject noted in the 13th paragraph is disposed of in a letter from the Government of India, of which I have the honour to transmit a copy for your information.

9. The objects referred to in the 14th and concluding paragraph of your letter, will, I think, form an interesting portion of the general collection to be transmitted from the Nizam's country.

10. The articles you may be so good as to forward to Secunderabad, to the address of the Committee, if furnished from any part of the Nizam's country, will be paid for by the Nizam's Government; but those procured from the Shorapore district itself, should, I think, be paid by that State

11. I shall submit a copy of your letter now under acknowledgment, and of the lists to which it gave cover, as well as of this reply, for the information of the Secunderabad Committee; and shall not fail to communicate to you hereafter any suggestions with which the Committee may kindly favour me after perusal of these papers.

(Signed) J. S. Fraser, *Resident.*
(True Copy.) Cuth. Davidson,
Officiating Assistant Resident.

Resolved,—That the best thanks of the Committee be given to Major-General Fraser, for his kindness in favouring them with the above correspondence, which will be recorded, and which the Committee gladly avail themselves of his permission to make generally known.

College, Madras, 22nd June 1850.

Sir,—I have the honour, by desire of the Madras Central Committee, to annex copy of a resolution of the meeting of this day, and at the same time to express the Central Committee's best thanks for your having communicated and placed at their disposal the useful and varied information contained in the several reports from the officers of H. H. the Nizam's army, and the gentlemen composing the Committees assembled under your direction to report on the products and resources of the Nizam's territories.

(Signed) Edward Balfour,
Secretary to M. C. C.

To Major-General Fraser, *&c.,*
Resident at Hyderabad.

List of Articles furnished by Nawab Siraj-ul-Mulk Bahadur, Minister to His Highness the Nizam of Hyderabad.

Hyderabad Residency, 27th September 1850.

Sir,—I am greatly obliged by the polite offer you have made, of furnishing certain articles for transmission to the National Exhibition of 1851.

2. I have communicated this offer to the gentlemen who form the Secunderabad Committee, with a view to their acquainting me which of these several articles it may be desirable to accept and transmit to England; as it is not the object of the Supreme Government, that either *duplicates* should be forwarded from hence, or anything else than what is *peculiar* to His Highness the Nizam's country.

3. I shall do myself the honour of communicating to you hereafter the reply which I may receive from the Committee.

4. In the mean time I request you will be so good as to let me know in what manner you would wish the articles, you are now so good as to offer, to be ultimately disposed of after their exhibition in England; whether to be sold in England on your account, or given up to any agent whom you may appoint in London, for the purpose of taking charge of them and returning them to India.

I have, &c.,
(Signed) J. S. Fraser, *Resident.*
(True copy.) Cuth. Davidson,
Assistant Resident.

To Siraj-ul-Mulk Bahadur,
&c., Hyderabad.

Hyderabad, 30th September 1850.

Sir,—I have been favoured with your letter of yesterday's date.

With reference to the last paragraph of your letter, I beg to say that I am not desirous that any of the articles which may be forwarded by me to the National Exhibition should be returned to me, or sold on my account; and I therefore leave it entirely to you and the gentlemen of the Committee, either to place the articles in question, after their exhibition, in a museum, or if sold, the proceeds to be given to any of the charitable institutions in London.

I shall be obliged by your kindly making me acquainted with the latest date on which articles intended for the Exhibition should be sent from hence.

I have, &c.,
(Signed in Persian) Siraj-ul-Mulk.

To Major-General J. S. Fraser,
British Resident at Hyderabad.

Translation (furnished by Siraj-ul-Mulk Bahadur) of a List of Articles manufactured at Aurungabad, in the Hyderabad Territories, intended by the Nawab Siraj-ul-Mulk Bahadur for Prince Albert's Exhibition in London.

Variety of sets of lace (Kinaree), viz.:

Elegant embroidered lace, each piece 16 yards in length, from 3 to 10 Rs. per yard; gold lace of the Akbarabad (Agra) pattern of deep colour, at 2-11 Rs. per tolah; silver lace of the Akbarabad (Agra) pattern of deep colour, at 2 Rs. per tolah.

Each set of lace weighs 12 tolahs.

Gold lace (stamped figures) of deep colour, at 2-11 Rs. per tolah; silver lace (stamped figures), of deep colour, at 2 Rs. per tolah; narrow gold lace (gota), diamond cut pattern of 40 threads, deep colour, at 2-11 Rs. per tolah; narrow silver lace, at 2 Rs. per tolah; narrow gold lace (unkee), deep colour, at 2-10 Rs. per tolah; narrow silver lace (unkee), deep colour, at 1-14 Rs. per tolah; thin gold lace (tash), plain deep colour, at 2-8 Rs. per tolah; thin silver lace (tash), plain deep colour, at 1-12 Rs. per tolah.

Silver cloth (sarees) women's garments, with gold embroidery, 8 yards in length and 1½ yard in breadth, viz.:

80 tolahs, silver thread for the ground-work, 150; embroidery, 125; sprigs wrought in embroidery, 18 yards, 150.

The price of the cloth manufactured will be double the price of the above.

Two handkerchiefs 1¾ yards square for a gold handkerchief, viz.:

Gold ground 40 tolahs of gold thread, at 2-8 Rs. per tolah, 100; embroidery, 100; for a silver handkerchief silver ground 40 tolahs of silver thread, at 1-12 Rs., 70; embroidery, 105.

Valuable gold doobatahs, or scarfs 5 yards long 1¼ yard broad, viz.:

Gold ground, deep colour, 60 tolahs in weight, at 28 Rs. per tolah, 150; embroidery, 200; gold thread (mookush), very deep colour, at 28 Rs. per tolah; silver thread (mokaish), at 1-10 Rs. per tolah; Gold thinner (badilah), at 2-4 Rs. per tolah; silver thinner (badilah), at 1-10 per tolah; gold gokurro, deep colour, at 2-10 Rs. per tolah; silver gokurro, at 1-12 Rs. per tolah; gold fringe (kirum), at 2-12 Rs. per tolah; silver fringe (kirum), at 1-14 Rs. per tolah; gold jhaller (thin fringe), deep colour, at 2-12 Rs. per tolah; silver jhaller (thin fringe), at 1-14 Rs. per tollah; gunga jumnee jhaller (gold and silver fringe), at 28 Rs. per tollah.

Gold (seharah) long threads worn over the face in marriages by the bridegrooms in the form of veils, 65 Rs.

Gold spangles, deep colour, at 2-12 Rs. per tolah; silver spangles, at 2 Rs. per tolah; gold cups (kutoree), at 3-4 Rs. per tolah; silver cups (kutoree), at 2-10 Rs. per tolah; gold flowers (gulkirum), at 5 Rs. per 100; silver flowers, at 4 Rs. per 100.

A set of embroidered horse clothing complete, with cost 300 Rs.

Gunga jumnee kirum (gold and silver fringe), 2-10 Rs. per tolah.

Embroidered skull caps, at 10 or 12 Rs. each.

Mushroo or satin:

Satin mixed with gold thread, each piece 45 or 50 Rs.; satin of the Benares kind, each piece 25 or 30 Rs.; satin flowered, called kimroo, at 40 Rs. per piece.

Turbands (mundeel):

Women's garments, from 400 to 700 Rs. each; turbands, from 80 to 150 Rs. each; handkerchiefs (rather square embroidered shawls) 200 Rs. and upwards.

Silver articles:

Rose water sprinklers, 40 Rs. weight; cup and saucer, 50 Rs. weight; 2 small boxes, 15 Rs. weight.

Hire (workmanship?) and difference:

For good silver, 35 Rs. weight; gold for gilding good silver, 36 Rs. weight; viz. gold leaf, at 25 Rs. per tolah; hire for do. and enamelling, at 5 Rs. per tolah; exclusive of articles specified in the Persian list.

From Kowah Summunder:

Iron ore, wrought iron, sword, dagger, and dirk.

From Biler:

One of each kind of the articles manufactured there. One or two of Beuts, the rest of Bidung.

(True Copy.) Cuth. Davidson,
Assistant Resident.

Hookah pipes with silver mouth-pieces, made at Hyderabad.

Rolls of paper manufactured at Aurungabad.

A silver box made at Kurreemnuggur, in imitation of the Manilla manufactures (that is in filigree work).

Resolved that the following letter be despatched:

Hyderabad Residency, 30th September 1850.

Sir,—I shall do myself the honour of communicating to the Committee at Secunderabad, as well as to the Committee at Madras, your very liberal decision regarding the ultimate disposal of the articles which you are proposing to offer to the National Exhibition of 1851.

2. As the articles intended for the Exhibition should arrive at Madras by the end of December next, it is desirable that they should be forwarded from hence by the beginning of November.

I have, &c.,
(Signed) J. S. Fraser, *Resident.*
(True Copy.) Cuth. Davidson,
Assistant Resident.

To Siraj-ul-Mulk Bahadur,
&c. Hyderabad.

College Madras, 8th October 1850.

Sir,—I have the honour, by desire of the Madras Central Committee, to convey the expression of their best thanks for the correspondence you have done them the honour to present them with copies of, and to mention that the list and an abstract of the correspondence will be published in the "Gazette."

To Major-General J. S. Fraser.

The various articles sent from Hyderabad were conspicuous for the qualities which are now considered characteristic of the best Indian products; that is skill in workmanship, with taste in the distribution of patterns, and a happy combination and harmonising of colours. This is particularly interesting with regard to a territory so much in the interior of India, and where the influence of European art has not yet penetrated, and the productions must therefore be considered as the results of pure Indian skill and taste. The same principles are found to pervade and the like happy results to be produced by the artists of Poona in the west, as of Benares in the east, or of Dacca in the south, or of Delhi in the north. So also in the parts furthest removed from Mahomedan influence, as in the carving of the Malabar coral, and of the jewellery of Cabul and the ivory work of Travancore.

Numerous specimens of the Bidry ware, which was so much admired by competent judges in the Exhibition, have fortunately found a suitable locality in the School of Design, at present located in Marlborough House, and where they may be inspected at leisure by artists and the public. We extract the following observation on the Bidry ware, and on patterns, from Dr. Royle's lecture on the arts and manufactures of India:—

"*Patterns.*—The beauty and variety of patterns in the various articles which we have referred to, as well in the carved or engraved, as in the painted, printed, woven, or embroidered works, combined, as they so frequently are, with harmony of colouring, require notice in this section of our arrangement; and, as I have elsewhere said, this we see, whether we examine a production of Dacca, or one from Delhi, Benares, or Ahmedabad, Rajpootana, or Hyderabad, from Madras or from Mooltan, Cashmere or Khyrpoor, and whether in a common chintz or in a fabric of silk, or one enriched with silver or gold, or with imitations of gems. In all we see the utmost variety kept in bounds by the nicest taste; for even the most flowery and gorgeous appear never to exceed what is suitable to the material and the purpose to which it is to be applied. Mr. Digby Wyatt supposes the happy effects of Indian designers to be due to the refinement of taste engendered by their traditional education, and that this precludes their toleration of any departure from those harmonious proportions which the practice of ages has sanctioned as most pleasing and agreeable; Mr. Owen Jones states, that 'one guiding principle of the ornamentation of the Orientals, appears to have been that their decoration was always what may be called surface decoration. The patterns of their shawls and carpets are harmonious and effective, from the proper distribution of forms and colours, and do not require to be heightened in effect by strong and positive oppositions. In their scroll-work, the ornament and the ground occupy equal areas. To obtain this effect requires no ordinary skill, and it can only be arrived at by highly-trained hands and minds.'"

Group of articles in Bidry, inlaid with silver and gold. —Plate 409.

Bidry.—A metallurgical compound of considerable interest is that which has been named Bidry, from Beder, a city situated about 60 miles to the north-west of Hyderabad, and of which we have had a variety of articles in the Exhibition. Most of these have been greatly admired for the elegance of their form, as well as the gracefulness of the patterns with which their surface was engraved. Though the groundwork of this composition is of a blackish hue, its natural colour is that of some kinds of pewter or zinc. Dr. Heyne informs us that it is composed of copper 16 oz., lead 4 oz., tin 2 oz. These are melted together, and to every three ounces of the alloy 16 oz. of spelter, that is zinc, is added when the alloy is melted for use. But to give the ware the black colour which is esteemed, probably from bringing out the pattern, it is dipped into a solution of sal-ammoniac, saltpetre, common salt, and blue vitriol.

Dr. B. Hamilton saw zinc 12·360 grains, copper 450 grains, and lead 414 grains melted together, and a mixture of resin and bees' wax introduced into the crucible to prevent calcination. It was then poured into a mould made of baked clay, and the article then handed over to be turned in a lathe. The artists then inlay flowers or other ornaments of silver or of gold. They first rub it over with sulphate of copper and water, which gives the surface a blackish colour, and enables the artist more readily to distinguish the figure which he draws. This he does with a sharp pointed instrument of steel, and then cuts it with small chisels of various shapes, and then with a hammer and punch fills the cavities with small plates of silver, which adhere firmly to the bidry. It is then polished and stained as described above.

The various articles made from it are vases, wash-hand basins and ewers, hookah bottoms, spittoons, cups and dishes, small boxes and weights. These are inlaid with silver commonly, but sometimes with gold. The patterns are usually as much admired as the forms of the vessels.

Though usually called Bidry, sometimes Vidry, it is also manufactured at other places; specimens have been sent from both Beder and Aurungabad, from His Highness the Nizam and his minister Siraj-ul-Mulk, which are particularly beautiful, in the Nizam's territories; also from north-west India and from Bengal. The latter, however, are inferior to the other in workmanship.

Products of Mysore sent to the Exhibition.

1. A Bangalore carpet.
2. Steel wire, 7½ Rs. weight, from Chennapatam.
3. Women's nose and ear ornaments of brass and coloured glass.
4. Striped purple saree.
    One striped orange, called puncharungee.
    One small striped orange, called kalunder.
    One purple small check, called mooughee.
    One orange striped, called ausawarree.
    One red check guddary murree.
    One orange with black check pootanb.
    One orange with red and black check, called roomal choukiee.
    One green.
    One red with small white and black check.
    One man's cloth.
5. One sullah, or sails, or sarree, from Surjapoor.
    Five silk handkerchiefs.
    Twelve white silk pocket handkerchiefs.
    Three Bangalore silk shawls, at 36 Rs. each.
    Two Bangalore silk shawls, at 20 Rs. each.
    Two Bangalore silk shawls, sent by the owners
    Two Bangalore silk scarfs, at 13 Rs. each.
6. One bottle of fluid kino.
7. One bottle of gamboge.
8. A specimen of gamboge.
9. A bag of 43 lacquered toys Chennapatam.
10. Six specimens of wool from the Government Experimental Farm, to illustrate the gradual change from hair to perfect wool.
11. A bottle of puplee chuckee chips, used as red dye (sort of creeper).
12. Capala rung red dye.
13. Box with specimen of iron ore, magnetic iron, balapum stone, steel, and corundum.
14. Bag of kadukai, a valuable astringent nut, used as a dye and in ink manufacture.
15. Two vessels cut out of balapum stone.
16. Two ditto ditto.
17. Specimen of wood used as a red dye.
18. Bag of rice and paddy called mooray jelly.
19. " " sookha doss.
20. " " manikaray.
21. " " kristna neela.
22. " " seeta bogum.
23. " " jilka raja.
24. Sandal-wood choury.
25. Carved sandal-wood box, with card case and two penholders.
26. Box with 135 specimens of wood.
27. Grindstone of powdered corundum and melted lac.
28. and 29. Two pieces of black wood (Dalberger).

BENGAL PRESIDENCY.

In the Introduction to the List of the India Department, Illustrated Catalogue, vol. ii. p 859, mention was made of the several Committees which had been established in the three Presidencies to forward the objects of the Great Exhibition, but that list gives a very inadequate idea of the Committees and Sub-Committees of the Bengal Presidency. The following list is therefore published as giving a detailed view of the whole, together with the names of the Residents and Political Agents at Native Courts, whose contributions formed so conspicuous a feature in the Indian Department.

1. *Central Committee at Calcutta.*

The Hon. Sir Lawrence Peel, Pres.
C. Beadon, Esq., Sec.
Succeeded by
J. M'Clelland, Esq., Sec.

2. *Patna Committee*

G. Gough, Esq.

Sub-Committees.

a. Behar—T. Sandys, Esq.
b. Shahabad—W. Travers, Esq.
c. Sarun—F. B. Kemp, Esq.
d. Chumparun—E. M'Donel, Esq.
e. Tirhoot—C. T. Davidson, Esq.
f. Bhaugulpore—G. Loch, Esq.
g. Monghyr—G. P. Leycester, Esq.

3. *Moorshedabad Committee.*

T. Taylor, Esq.

[The Rajah of Burdwan offered to send his jewels to the Exhibition if their return could be insured to him.]

4. *Cuttack Committee.*

F. Gouldsbury, Esq., Pres.

Corresponding Members.

a. Pooree—A. Forbes, Esq.
b. Balasore—W. J. Allen, Esq.
c. Bhuddruck—W. Brown, Esq.
d. Jellasore—T. Campbell, Esq.

5. *Dacca Committee.*

R. H. Mytton, Esq., Pres.

Correspondong Members.

a. Cossyah Hills—Lieut.-Col. Lister.
b. Silhet—H. Stainforth, Esq.
c. Mymensing—R. F. Cunliffe, Esq.
d. Burrisaul—F. E. Read. Esq.
e. Cachar—Capt. Verner.
f. Munnipore—Capt. M'Culloch.

6. *Chittagong Committee.*

R. Torrens, Esq., Pres.

7. *South-west Frontier.*

J. H. Crawford, Esq., Pres.

[Several Rajahs on Committee, and others Corresponding Members.]

Sub-Committees.

- *a.* Chota Nagpore—Lieut. Jas. Emerson.
- *b.* Hazareebagh—Capt. T. Simpson.
- *c.* Sumbulpore—Dr. Cadenhead.
- *d.* Singbhoom—Lieut. J. S. Davies.
- *e.* Manbhoom—Lieut. G. N. Oakes.

8. *Assam Committee.*

Major F. Jenkins, Pres.

Corresponding Members.

- *a.* Debrooghur—Major S. F. Hannay.
- *b.* Saikoah—Capt. Smith.
- *c.* Seebsagur—Capt. T. Brodie.
- *d.* Nazeerah—S. Mornay, Esq.
- *e.* Durrung—Capt. Reynolds.
- *f.* Nowgong—Capt. Butler.
- *g.* Goalparah—Capt. Sturt.
- *h.* Cooch Behar—Kalley Chundur, Lehoree.

9. *Arrakan Committee.*

Capt. A. P. Phayre, Pres.

Corresponding Members.

- *a.* Kyoukphyoo—Lieut. G. Faithful.
- *b.* Ramree—Capt. T. B. Sparks.
- *c.* Sandoway—Lieut. A. Fytche.

10. *Moulmein Committee* (for Tenasserim Province).

Major A. Bogle.

Corresponding Members.

Amherst Town—E. O'Riley, Esq.
Tavoy—The Senior Assistant Commissioner.
Mergui—The Senior Assistant Commissioner.

11. *Delhi Committee.*

Sir T. Metcalfe.

12. *Meerut Committee.*

C. Gubbins, Esq.

13. *Rohilcund Committee.*

H. Pidcock, Esq.

14. *Agra Committee.*

H. W. Tyler, Esq.

15. *Allahabad Committee.*

R. Temple, Esq.

16. *Benares Committee.*

E. A. Reade, Esq.

17. *Singapore Committee—v.* Penang.

Lieut.-Col. Butterworth.

Sub-Committees.

Malacca—Capt. Ferrier.
Penang—E. A. Blundell, Esq.

18. *Lahore Committee—v.* List.

Lieut.-Col. Sleeman—Resident at Lucknow.
Lieut.-Col. Thoresby—Resident in Nepaul.
Col. J. Low—Resident in Rajpootana.
T. R. Davidson, Esq.—Resident at Nagpore.
Sir Richmond Shakespeare—Gwalior Territories.
Major Harris—Chundeyree.
Lieut.-Col. Dixon—Ajmere and Mairwarah.
Capt. W. H. Richards—Jeypore.
Capt. D. A. Malcolm—Joudpore.
Hon. H. B. Devereux—Kotah.
Lieut.-Col. Sandys—Mahidpore and Purtaubghur.

ADDITIONAL NAMES of EXHIBITORS in the BENGAL PRESIDENCY.

Messrs. Sainte, Cossipore.
Messrs. Godfrey, of Ghazeepore.
The Joradah Factory.
C. R. Jennings.
Messrs. Macnair, of Baboo Kully.
Mr. W. Macnair, Joradah.
Degumber Mittre.
Rakhaldoss Mookerjee.
Bahary Laul Mookerjee.
T. R. Davidson, Esq.
J. R. Colvin, Esq.
H. Piddington, Esq.
J. S. Oldfield, Esq.
E. A. Blundell, Esq.
Lieut.-Col. Fouquet.
Messrs. Watson, of Surdah.

LAHORE.

The Rajah of Nabba.
The Rajah of Jheend.
The Rajah Wuzeer Sing.
The Nawab of Muler Kotlah.

SINGAPORE LOCAL COMMITTEE, BORNEO.

W. W. Ker, Esq.
L. Weber, Esq.
Tan Kim Seng.

The Contributions from Labuan and Borneo were sent through the Singapore Committee, by

Sir James Brook.
H. Low, Esq.

MADRAS PRESIDENCY.

H. H. the Nizam of Hyderabad.
Siraj-al Mulk Bahadoor, Hyderabad.
The Rajah of Cochin.
The Rajah of Coorg.
Walter Elliot, Esq.
A. P. Onslow, Esq.
Dr. Cleghorn.
C. W. Reade, Esq.
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MALTA.

30 **Testa, Salvatore Strada San Giovanni,** *Valletta*—Carver.

Vase, carved from Maltese stone, ornamented with satyrs and flowers, size, 4 feet 8 inches in height, and 2 feet 9 inches in breadth.

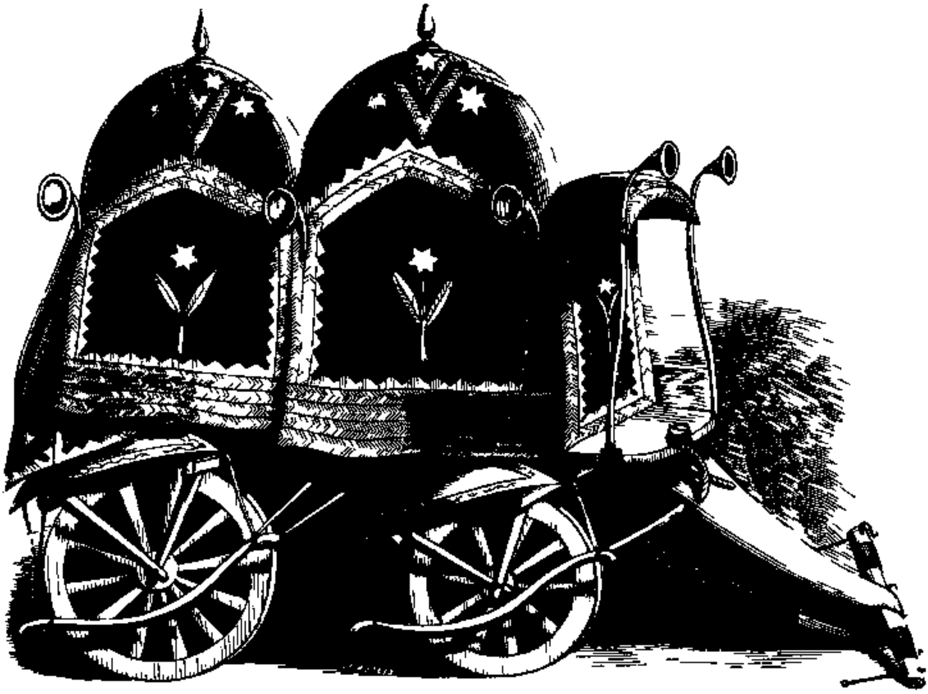
Vase, in stone, ornamented with eagles; size 1 foot 9 inches high, and 1 foot 3 inches broad. Tripods supporting tazzas, &c.—*Malta* (See Plate 359), p. 946.

[Maltese, like Caen stone, is admirably fitted for the stone-carver's purpose; it works freely, is close in texture and warm in colour; it is well adapted for ornamental objects of the class represented in the illustration, where a considerable amount of detail is introduced, which must be produced at a comparatively moderate cost: it is not fitted for exposure to the elements. The stone is found in the island of Malta, as its name indicates.—W. C. A.]

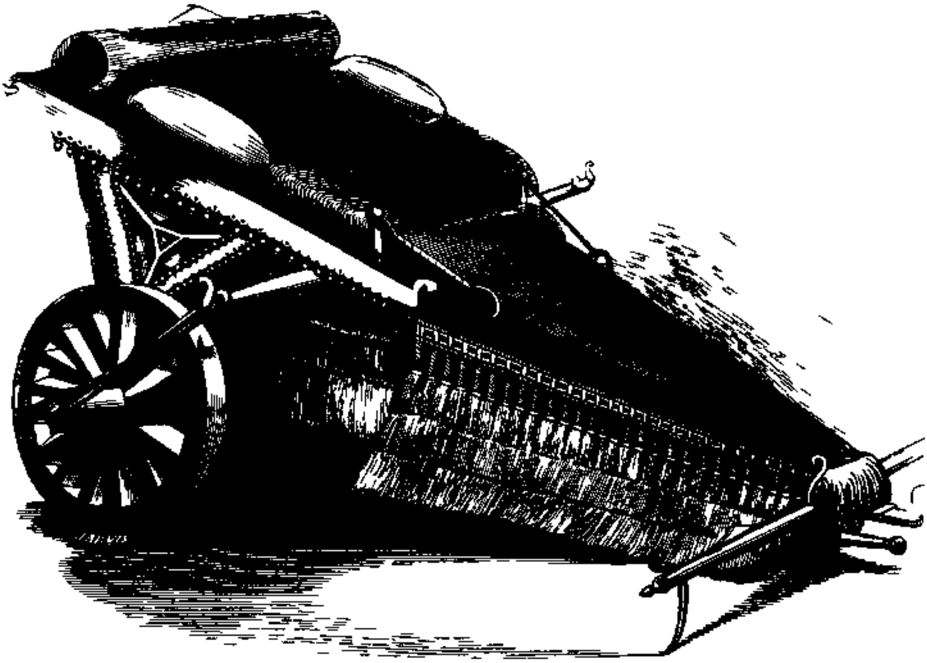
VAN DIEMEN'S LAND.

Deane, Dray, & Deane.

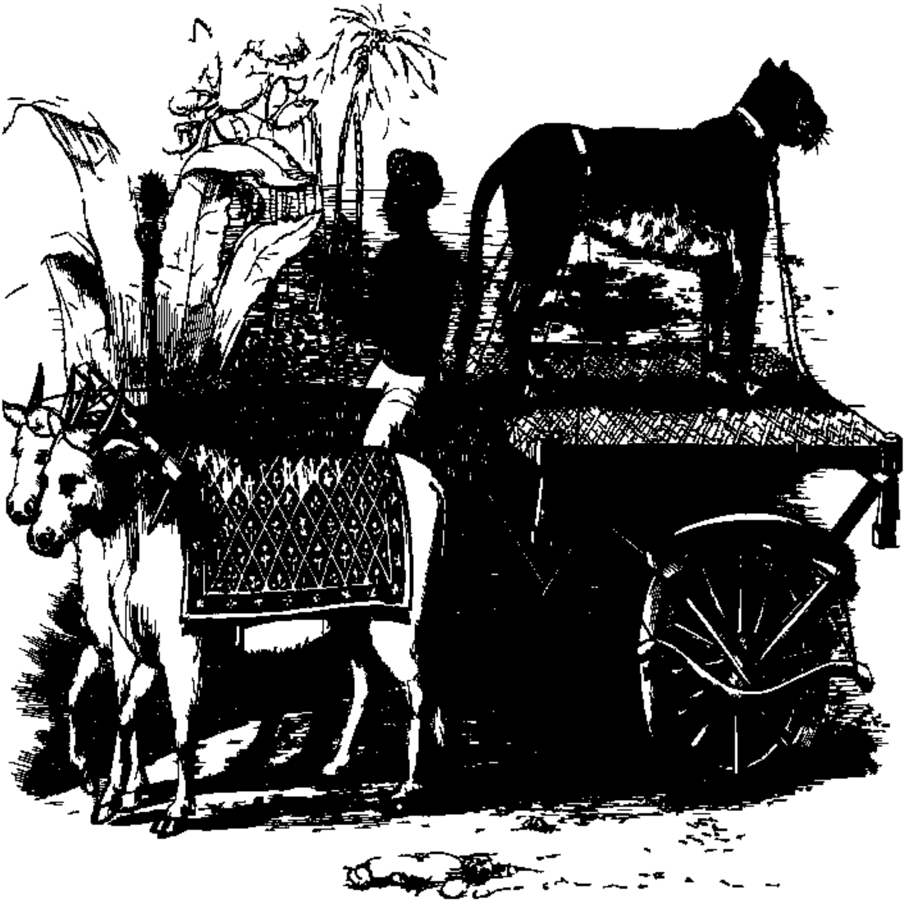
Samples of wheat, the produce of the colony.



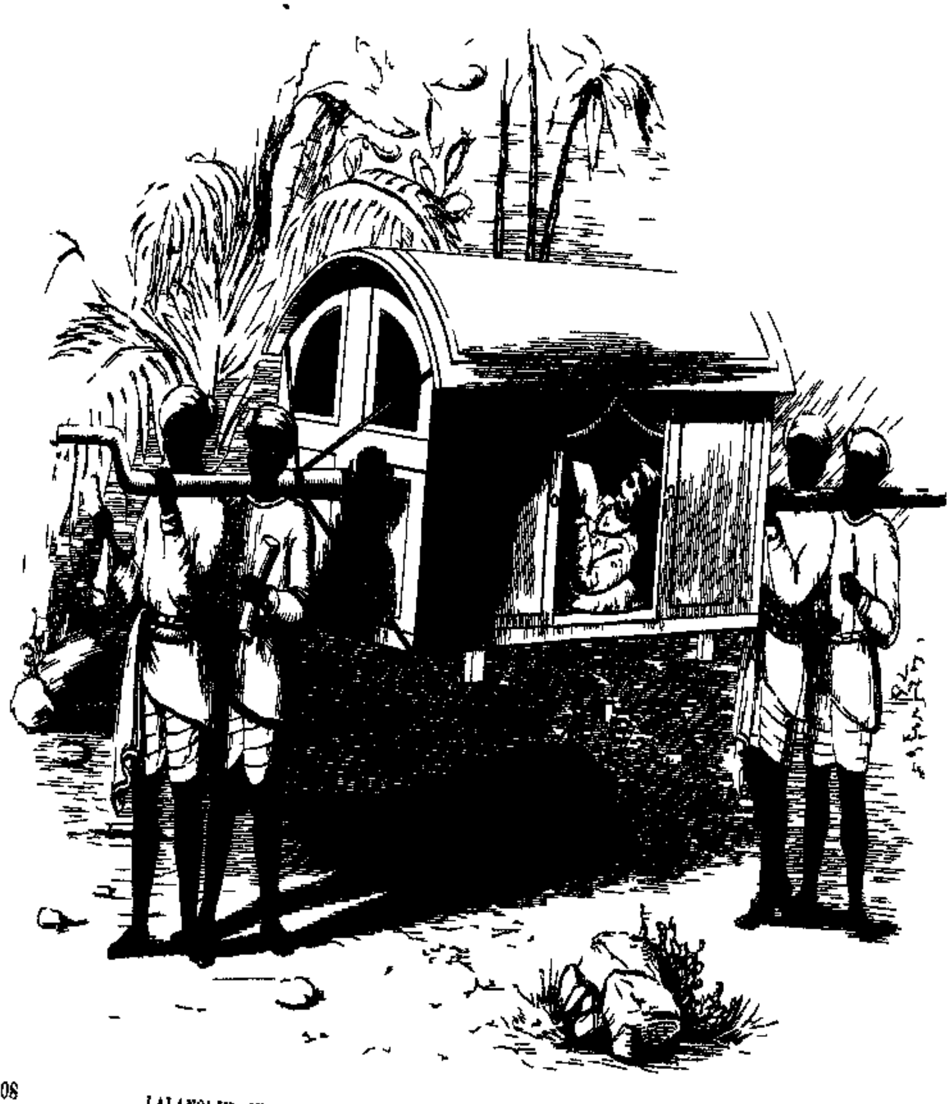
INDIA. MODEL OF A REKPON OR MAHRATTA CARRIAGE, FROM BENGAL.



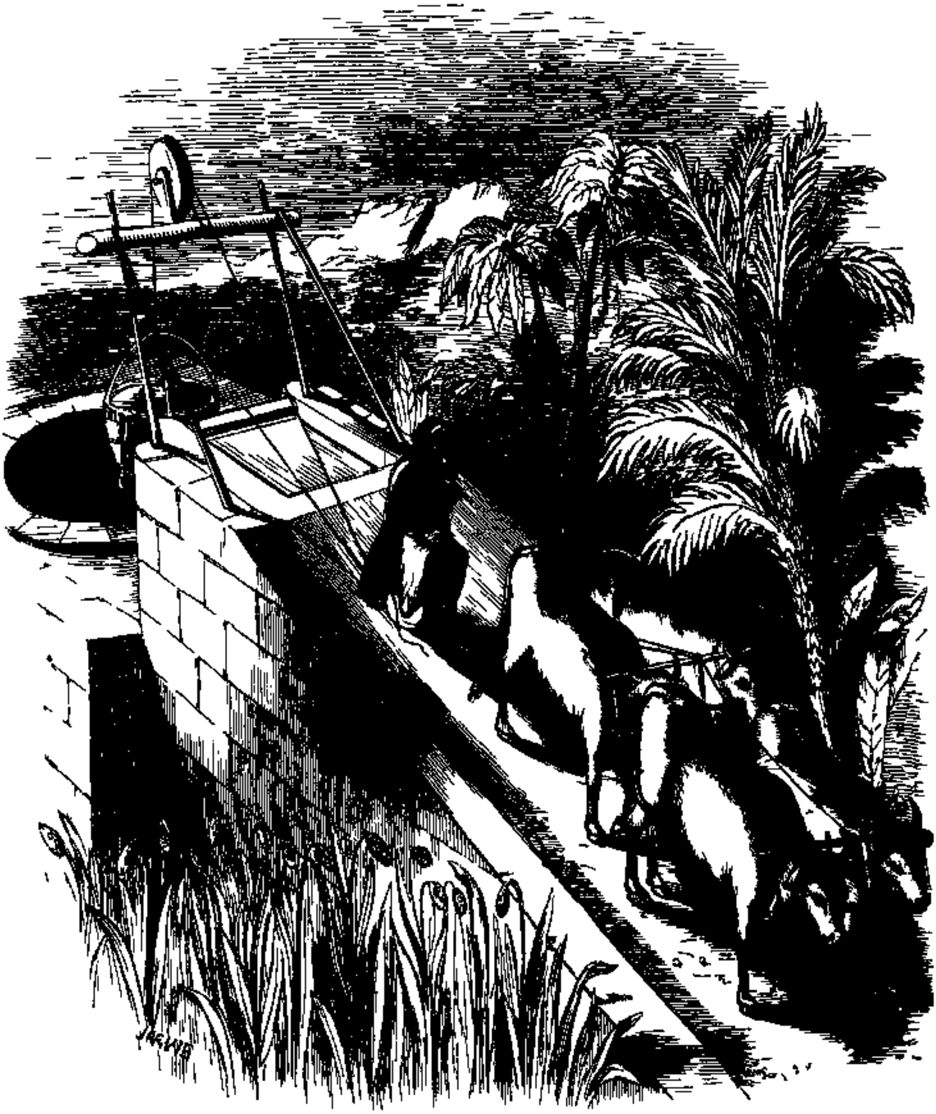
INDIA. CARRIAGE FOR LADIES, FROM LAHORE.



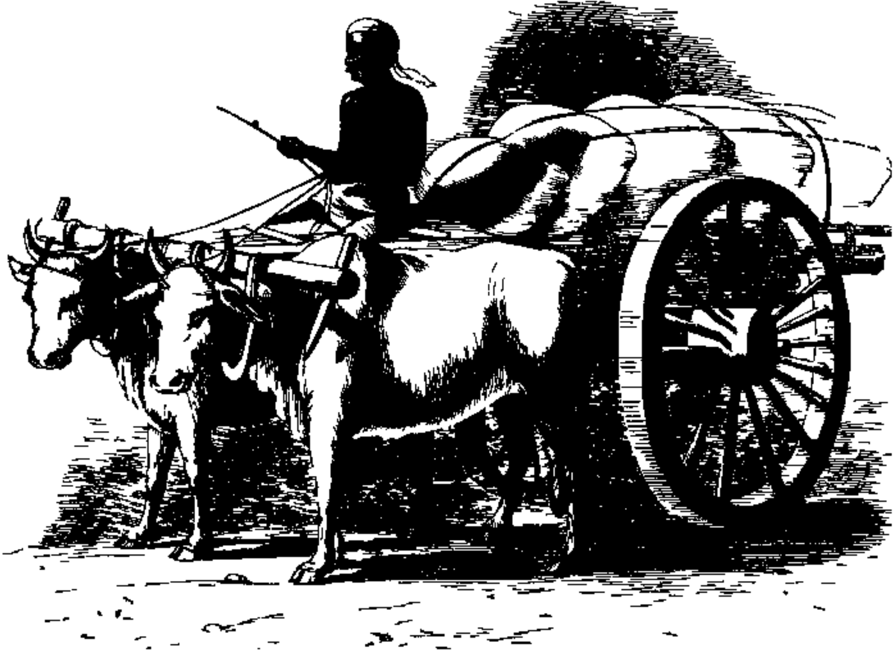
355 CHITA, OR HUNTING LEOPARD, WITH CART, FROM WHICH HE IS LET LOOSE WHEN THE GAME IS SEEN
MODEL MADE IN THE BOMBAY PRESIDENCY, INDIA



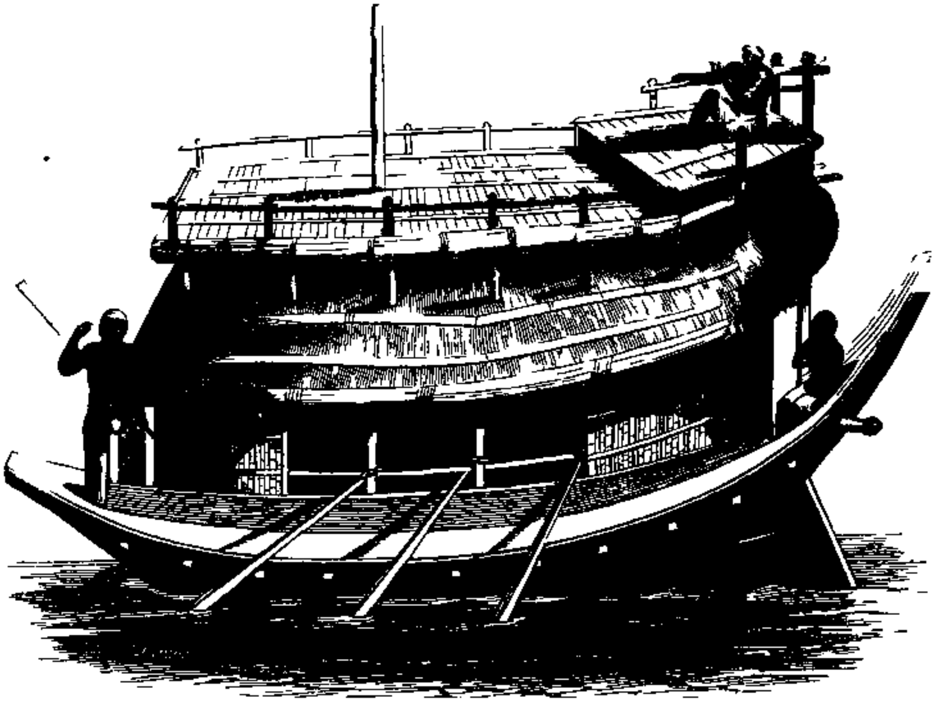
PALANQUIN, SHOWING THE MODE OF CONVEYING THE TRAVELLERS, INDIA



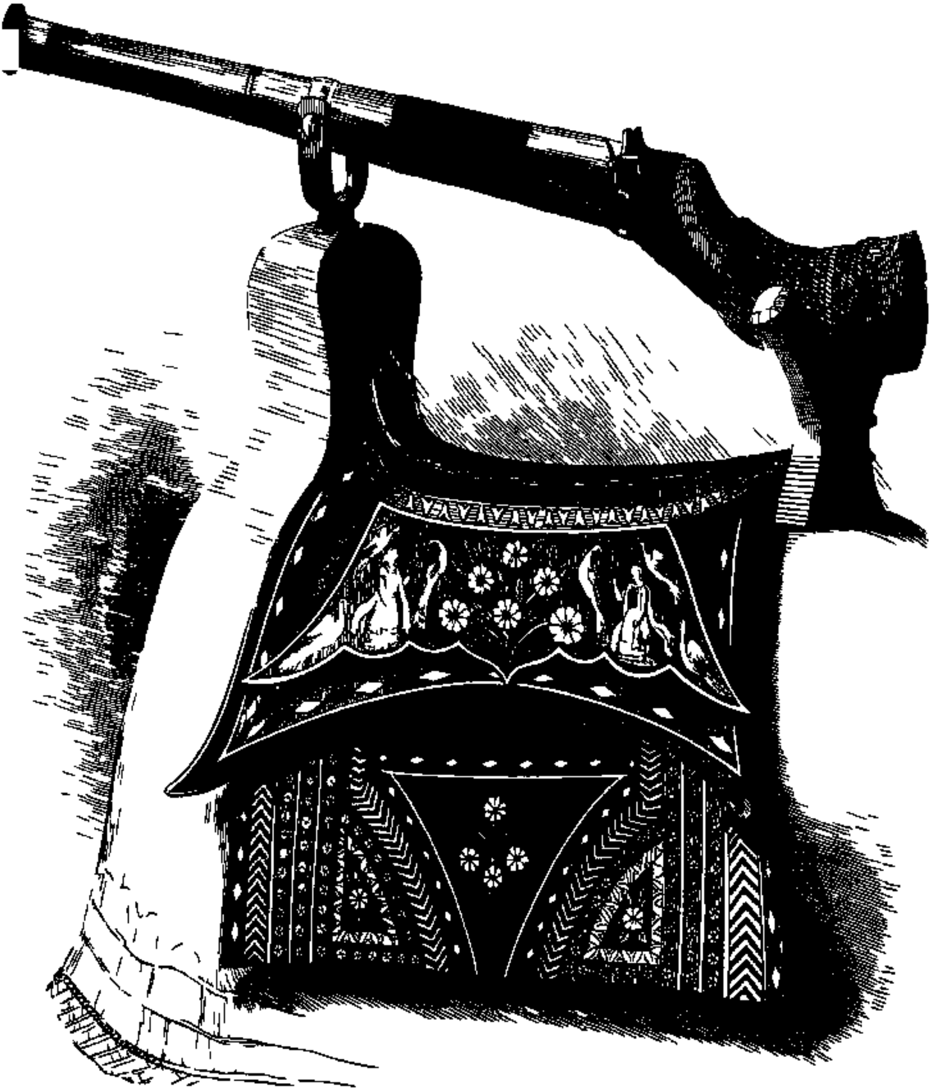
WELL, WITH BULLOCKS DRAWING WATER, AS PRACTISED IN MANY PARTS OF INDIA



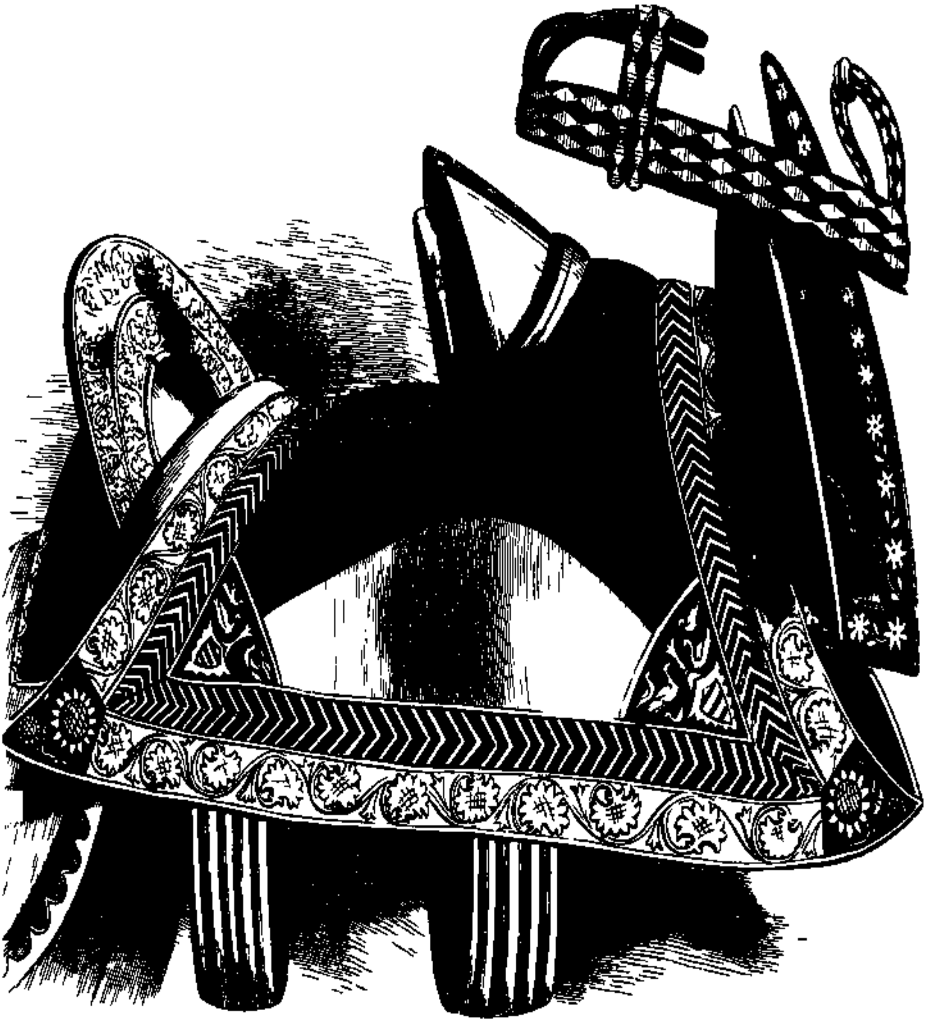
INDIAN HACKERY, OR CARRIAGE FOR CARRYING COTTON, ETC.



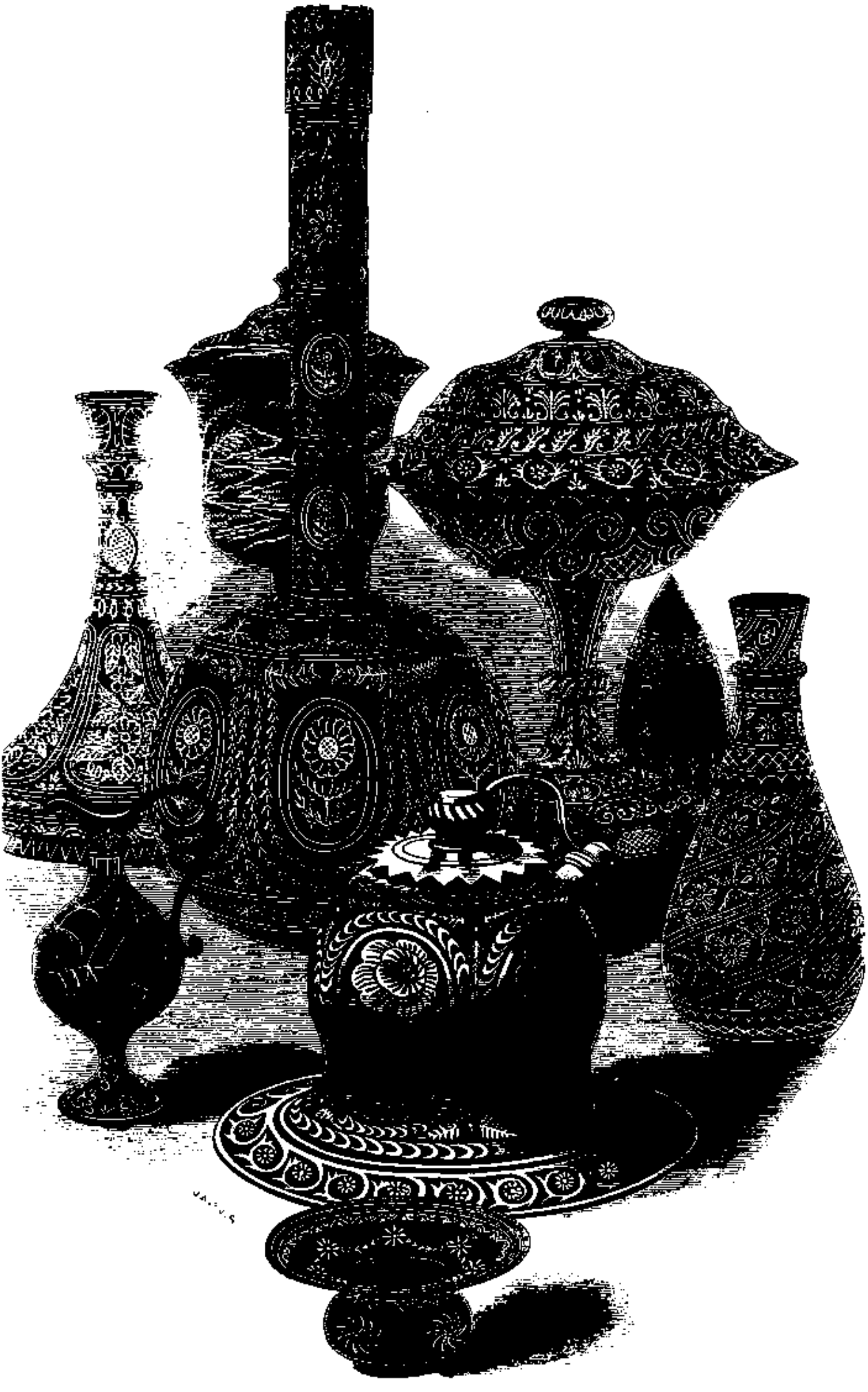
MODEL OF A CARGO-BOAT AS USED ON THE GANGES.



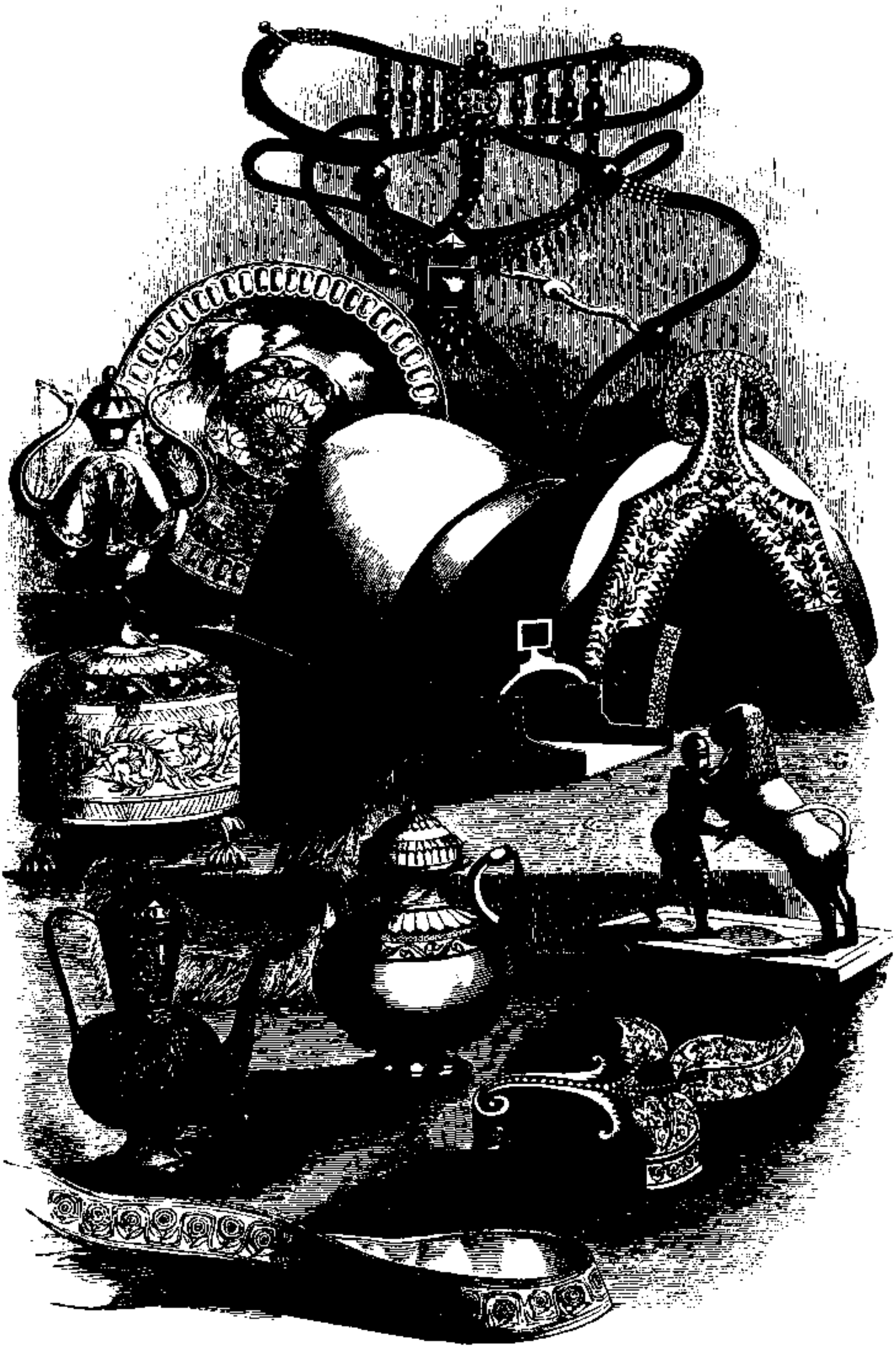
CAMEL SADDLE AND MOUNTED GUN, FROM LAHORE



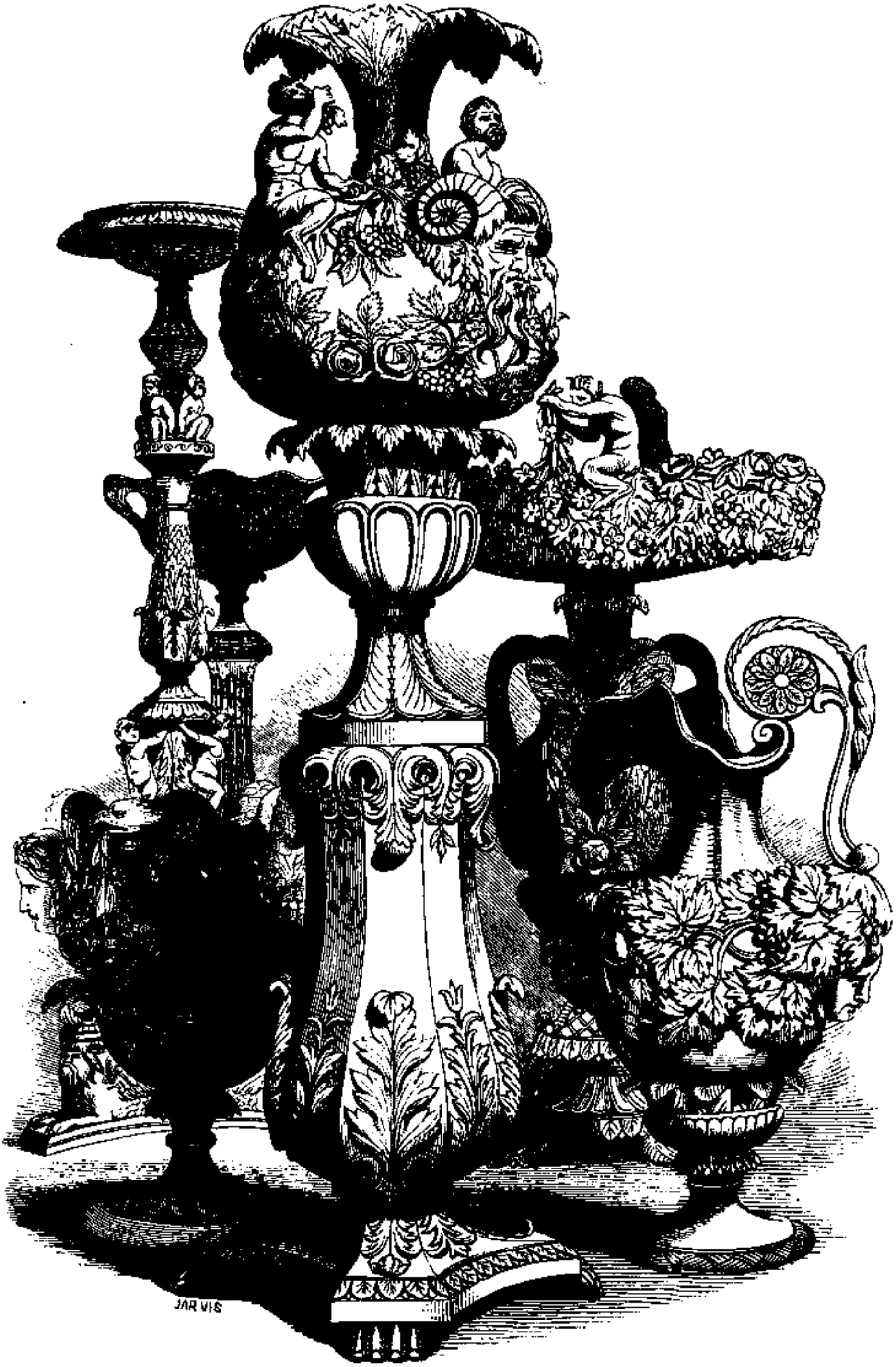
XVI.—CAMEL SADDLE, FROM LAHORE



403. INDIAN VESSELS IN IRON, ORNAMENTED WITH SILVER.



291. SADDLE AND BRIDLE, MOUNTED WITH GOLD AND SILVER, AND ORNAMENTED WITH JEWELS.
MISCELLANEOUS SILVER ARTICLES. INDIA.



359. GROUP OF MALTESE VASES, CARVED IN STONE.

FOREIGN STATES.

AUSTRIA.

135A **Batka, Wenzel**, *Prague*—Proprietor.

A very small balance, by Kusche, of Vienna, contained in a platinum blowpipe apparatus.

---

614 **Schiller & Gerbing**, *Bodenbach, near Tetschen-on-the-Elbe, Bohemia*—Manufacturers.

Group of Syderolite ware, consisting of wine-jug, flower vases, wine-cooler, candlesticks, icepail, inkstand, &c.—P. 1038.—Plate 412.

746 **Monti, Raffaele**, *Milan*, and 45 *Great Marlborough Street, London*—Designer and Sculptor.

Statues in Carrara marble.

Eve after the Fall, arrived at the full consciousness of her crime.

> "up she rose
> As from unrest; . . . . . .
> . . . . left
> To guilty shame;
> . . . . destitute and bare
> Of all her virtue: silent, and in face
> Confounded, long she sat, as stricken mute."
> (Milton's *Paradise Lost*, book ix.)

A Circassian slave in the market.

> "And when chained in the market, she crouched down, as if in shame; but at the same time, looking round at the crowds, her eyes shone through the veil with defiance and dignity."
> (Barretti's *Poetical Journey in the East*.)

Cupid, as a vendor of hearts, one of a pair representing ancient and modern love.—P. 1044.—Plate 417.

"R. Monti, of Milan (746, p. 1044). Eve after the Fall, arrived at the full consciousness of her crime. This figure, which is in marble, is appropriately conceived; the motive is pleasing, and the execution is very careful."—*Juries' Reports*, Cl. 30, p. 703.

PRUSSIA.

279 **Kiss, Professor A.**, *Berlin*.

Group in bronzed zinc, life-size, representing an Amazon on horseback, attacked by a tiger; after one cast in bronze, in 1839, by a number of amateurs, and presented to the King of Prussia, and which was placed by his Majesty's command, in front of the Royal Museum, Berlin. Designed by the exhibitor. Cast in zinc and bronzed over by M. Geiss, of Berlin, by his peculiar process.—P. 1065.—Plate 294.

[Zinc has not been applied to the purposes of statuary casting, or for works of architectural decoration, in England; but in Prussia it has been in use for a considerable period. Its application, instead of bronze, was suggested by Schinkel; but it seems doubtful how far its durability may be trusted. Sheet zinc is affected by the atmosphere, and speedily crumbles; otherwise the fusibility of the metal at a heat considerably lower than bronze, the less cost of the raw material, in connection with a rigidity and hardness when cold, would, other circumstances being equal, form important recommendations for its very general adoption. The casting of the Amazon was accomplished by the method employed by Cellini, which may be briefly described as follows:—A pit is dug, and a grating fixed at some distance from the bottom; a rude representation of the intended figure, proportionably less in size than the intended cast, and corresponding to the interior or core, is reared upon this. After this is dried, sheets of modelling wax, corresponding to the thickness of the metal, is spread upon it, and the details to be represented produced by the artist with his modelling tools. Rods of bronze, or the metal of which the statue is cast, are driven through the wax, and project sufficiently to pass into the outer cover of the mould: these fuse with the molten metal, and are not recognised in the finished statue. From the prominent parts of the model rods of wax are projected, which rise upwards, and are intended to allow the escape of air (the presence of which is calculated either to destroy the mould or render the cast imperfect): other rods of wax indicate the passages through which the metal is to be conveyed. The wax is now coated with loam, or powdered crucible ground with water to the consistency of cream. Coat follows coat, until it is thought sufficient thickness is arrived at. Earth or clay is heaped upon this, the whole cased with bricks, which is bound together with iron rods. Heat is then applied under the grate; the wax, which represents the thickness of the metal, runs out and leaves a space, ultimately filled with the metal which forms the statue; the heat, which serves to melt the wax, serves also to dry the mould and expel the damp. When covered up, the top of the mould is below the level of the furnace containing the melted metal, which, when tapped, flows through the various channels till the mould is filled. After cooling, the outer coating of the mould is destroyed, and the statue stands revealed. The runners are cut off, and the whole chased or finished as may be desired. In the present instance copper was deposited on the surface of the zinc by galvanic action; a bronze surface is thereby produced, which is alike beautiful and durable. The reader interested in the art of casting is referred to chap. 6, book 4th, of the Autobiography of Cellini, wherein is detailed the casting of his celebrated group of Perseus and Andromeda.—W. C. A.]

"A. Kiss, of Berlin (279, p. 1065). An Amazon on horseback attacked by a Tiger. With a ferocious bound the animal has leaped upon her horse, and fastened on him with teeth and claws. The Amazon is about to transfix her assailant with her spear. This work, which is on a colossal scale, has been cast in zinc by Geiss, from the original model, and bronzed by electro deposit. In this group the artist has, by an original and powerful effort of invention, placed before our eyes the most critical moment of the action. The whole expression and character of the Amazon are very nobly conceived; the anatomy displays consummate knowledge; great style is shown in the general treatment of the surface, and the details are wrought out with wonderful force and truth. The whole work is full of soul; it seems the full, earnest utterance of a true artistic nature.

"The great qualities of this work called forth at the time of its completion the most unbounded admiration on the part both of artists and friends of art. It was executed in bronze by a public subscription, and now ornaments one side of the staircase of the Royal Museum at Berlin."

"Since the year 1815, great efforts have been made in Prussia, by the successive monarchs and administrations of Prussia, to encourage the fine arts in that country. Museums, and other buildings of a similar character, have been erected; sculptors, and more recently painters, have been employed in the execution of monumental works, and the cultivation of all those manufactures, on which art can exercise any influence, has been greatly promoted by the foundation of the institution for trades (Gewerbe Institut), under the energetic and judicious management of Privy-councillor Beuth. That these efforts have led to the happiest results has been proved by the Exhibition, which has furnished to Prussia a long-desired opportunity of showing what progress has been made."—*Juries' Reports*, p. 697.

811 **Scholz, L. W.**, *Meiningen*—Inventor and Manufacturer.

Large carved ivory tankard.—P. 1095.—Plate 297.

[Ivory has been employed from a very early period as a material upon which to exercise artistic skill and taste. The recent excavations at Nineveh disclosed numberless objects formed of that substance, delicately and elaborately carved. The benches of the galleys of the famed city of Tyre were inlaid therewith by "the company of the Ashurites;" allusions to ivory in the sacred volume prove the acquaintance of the ancients with it as a substance adapted for the purposes of ornamentation. The most extraordinary work executed in ivory appears to have been the Jupiter of the great Phidias, who flourished some 440 years before the Christian era. The statue was 60 feet in height, and was plated or veneered all over with pieces of ivory, which were carefully fitted together and thereafter carved to the required form. Quatremère de Quincy, who writes upon the subject, maintains that the ancients were acquainted with means which enabled them to procure plates of a great size. By a process recently introduced of cutting the tooth round by means of a saw, a ribbon or sheet of ivory is produced or unfolded, corresponding to the entire depth of the tusk and thickness of the sheet, and only limited thereby; these are principally used by miniature painters. Some time ago a sheet 17 inches by 38 was shown, and a French manufacturer has produced them so large as 30 by 150 inches. The chief supply of ivory is received from the Cape of Good Hope, Ceylon, India, and the countries to the eastward of the Straits of Malacca. Immense quantities of fossil ivory is found in Siberia, in the remains of an extinct class of animals, the tusks and bones of which have been preserved by the ice and soil in which they were imbedded. In the curious manipulation of ivory the Chinese take the lead; but very exquisite specimens of ivory carving may be seen in Dieppe, one street of the town being entirely filled with shops which expose at their windows for sale brooches, crucifixes, statuettes, paper knives, &c., covered with the most delicate workmanship, and thoroughly artistic in character. Ivory is readily turned in a lathe, with tools of an ordinary kind. It is carved with chisels and gouges, smoothed with files and floats of suitable cut; and after being rendered on the surface of a finer texture by friction with very fine glass or emery paper, the final polish is produced by friction with a rag on which whiting and water are spread, or, where the surface is irregular, by a brush dipped in the same material.—W. C. A.]

MECKLENBURGH.

11 **Dolberg.**

A balance to carry one kilogramme in each pan. The oscillation of the pans is checked by hair brushes. The pans are suspended from plates of steel, having plane surfaces, which rest upon the extreme knife edges.

BELGIUM.

Beaulieu, *Belgium.*

A repeating theodolite, furnished with a circle of 13 inches diameter, and read by 4 verniers to 10 seconds, and is adapted to take either horizontal or vertical angles. Six sextants, of different radii; an octant in ebony.

FRANCE.

369 **Perreaux, M.**, 14 *Rue Monsieur le Prince, Paris*—Manufacturer.

A straight-line divider, on Ramsden's principle; furnished with a long fine steel screw, and a screw-head divided into 400 parts, a helix screw, and a stop fixed at a definite point.

511 **Fastré, J. T.**, 3 *Rue de l'Ecole Polytechnique, Paris*—Manufacturer.

An assortment of delicate thermometers, the divisions in all cases being on their own glass stems; Regnault's hygrometer, and Ernst's barometer.

[This arrangement of the divisions being placed on the tubes of the thermometer, admits of a more correct reading of the temperature, and is not liable to the inaccuracy which would result from the expansion or contraction of the material out of which scales are usually made.—W. C. A.]

1231 **Fourdinois, Alexander Georges**, 46 *Rue Amelot, Paris*—Manufacturer.

A walnut sideboard in the Renaissance style, supported upon six hounds, of which two are in profile; in the centre is a large trophy of dead animals, on each side are panels with fruit introduced, the pilasters are adorned with four figures, representing the four quarters of the world; on the right is a hunter and on the left a fisherman, as carystydes. The figure on the top represents Abundance, on each side are groups of children reaping and gleaning. Some parts of the wood are tinted, to give more life to the carving.—P. 1236.—Plate 333.

[The Renaissance style is one peculiarly suited to artists familiar with the ornament of all ages, and recommends itself by the exuberance of the ornamentation which may be introduced in the same work; the above is an illustration of the style and its peculiarities. Its most graceful points are the exquisite specimens of carving in low relief, and the peculiar treatment of the foliage when introduced. —W. C. A.]

"The sideboard, carved in walnut, as here shown, and which is exhibited in the French Court, by FOURDINOIS (France, 1231, p. 1236), is an apt illustration of ornament having a just and characteristic significance. This piece of furniture is of rare excellence and merit in design, and of skilful and artistic execution as to carving, and, although of a highly decorative character, is fitted for the purpose for which it is intended. Six dogs, emblematical of the chace, resting on a floor of inlaid wood, support the slab, which has a simple carved moulding along its front, and is inlaid in geometric forms. The dogs are not merely imitative, but are treated as a part of an ornamented bracket or console, thus composed architecturally for bearing and support. Above the slab, standing on four pedestals, are female figures, gracefully designed as emblems of the four quarters of the world, each bearing the most useful production of her climate as a contribution to the feast. Thus Europe has wine; Asia, tea; Africa, coffee; and America, the sugar-cane. In the central space between the pedestals, which is rather the widest of the three, the products of the chace are poured out on the very board, and above this the space is filled with a framed picture of rare fruits, giving an opportunity to enliven the work by the addition of colour, without militating against good taste. Above the figures, which are treated as statues, the cornice is bracketed, and supports boys with the implements of the vineyard and of agriculture. It rises into a pediment in the centre: this is broken in the manner of the Renaissance, and decorated with a figure of Plenty crowning the group. The upright line of the back is gracefully varied at the sides, and constructively strengthened by carved brackets, above which are terminal figures bearing the implements of fishery on the one side and of the chace on the other. The panels of the pedestals and of the side compartments below are filled with carvings formed of the fruits of various countries, grouped with the instruments of horticulture and agriculture. Two brackets on the side compartments between the figures give an opportunity for placing silver plate in a position for display. The ornamental parts of this piece of furniture are carved throughout in a masterly manner, and in a bold and free style; it is consistent as a whole, and free from puerilities, and, while it is thoroughly fitted for its purpose as a sideboard, it is at the same time of a highly ornamental character, without any of its decoration being overdone or thrown away. It corresponds in its constructive form with the Renaissance of the 15th century—in the style of its carvings rather with the works of the 13th; the gates of Ghiberti having evidently supplied the idea of the groups of fruit and implements which fill the panels: and it may be remarked as a fault, that it has been overlooked that the relief in Ghiberti's work was suited to metal, the ornament standing beyond the face of the framing of the panel; but in adapting it to wood this should have been modified so as to bring the impost of the carving within the surface; such faults, however, are trifling in a work otherwise of great ability. The care which has been taken to keep all the ornamental details in the same scale throughout is an additional merit, and the wood has been judiciously chosen as to colour and grain."—*Juries' Reports*, pp. 722, 723.

1364 MOUTIER LE PAGE, 11 *Rue Richelieu, Paris*—
Proprietor.

Shield representing the Murder of the Innocents; chased and designed by M. Vechté; the designs are taken from the works of Raffaelle, Poussin, &c.—P. 1241.—Plate 307.

[The above is executed in the *repoussé* method; that is to say, it is formed out of thin metal, punched up from behind to give the several convexities displayed in the figures and ornaments introduced. The process may be thus described:—The design is sketched upon the reverse side of the metal, after which a series of punches (corresponding to the form of projection on the right side of the work) is struck with a small hammer, which produces the necessary relief; the back of the work is then filled with pitch, and the workman, with his small steel tools, adds the details of the figures and foliage on the front: any roughness is removed with peculiarly-shaped small files, called "rifles;" the whole is then polished, burnished, or gilt. This is a class of art in which the Italian gold and silver smiths of the 15th and 16th centuries were adepts; and of the many who laboured so successfully, none surpassed the Florentine artist, Benvenuto Cellini, who, in his peculiar autobiography, has left an imperishable record of the works executed by him.—W. C. A.]

"A. Vechté has also exhibited a shield, which, having been executed in France, is therefore in the French department. In its design the artist has harmonized with great skill the celebrated composition of the Murder of the Innocents; that by Raphael; preserved to us in the engraving by Marc Antonio, and in the tapestry of the Vatican, and that known to us in the picture by Nicolas Poussin. Honourable Mention (CL. 23, 97)."—*Juries' Reports*, p. 693.

1407 PRADIER, JACQUES, Member of the Institute of
Paris—Sculptor.

Phryne, statue in marble.
Statue of girl and butterfly.—P. 1243.—Plate 357.

Phryne, when accused of impiety and brought before the tribunal, after urging several reasons for her acquittal, finding she is about to be condemned, uncovered her bosom, which so influenced her judges, that it procured her an immediate release and pardon.

The moment chosen by the sculptor is that where she proceeds to unveil.

"J. Pradier, Member of the Institute, Phryne (1407, p. 1243). In this youthful female figure, the beauty of feature, the subtle refinement of form, and the sprightly grace of the attitude, alike corresponds with the name of the celebrated Hetaira which M. Pradier has given to his work. The careful chiselling of the surface, and the general breadth of the treatment, show that the sculptor has not studied the masterpieces of Greek art in vain.—*Juries' Reports*, p. 700.

1465 RUDOLPHI, J. F., 3 *Rue Tronchet, Paris*—
Manufacturer.

Reliquary in silver filigree; subject, Charity. Brooch, bracelet, and chatelaine, in oxidized silver.—P. 1246.—Plate 308.

[" In the higher works of art in silver, the foreign artist has had the boldness to regard the material, rich and costly as it is, merely as the vehicle of the art he adds to it; and that lustre and brilliancy, which is one of the great excellences of the rarer metals, he subdues by acids to prevent the glare from interfering with the forms of art. To the eye, silver, so treated, might be so much zinc, did not the informing mind and the beautiful art enshrined in it at once bespeak the valuable metal which alone is capable of rendering such a noble return for the artist's labour."]

"Rudolphi, J. F., 3 Rue Tronchet, Paris (1465, France, p. 1246). The articles exhibited are of a most varied description. Among others is a bracelet of oxidised silver, representing three children contending for some birds, which one of them is carrying off. M. Le Roi is the author of this beautiful design. Another bracelet in oxidised silver, from the design of M. Masson, represents two Cupids playing amongst the stalks of the vine, and holding up a sapphire with four pearls, in the form of a claw, very finely chased, and in good taste. The entire collection shown by this exhibitor appears to the Jury to be deserving of a Council Medal."—*Juries' Reports*, CL. 23, pp. 513 & 514.

1530 VITTOZ, G. T., 11 *Rue des Filles du Calvaire, Paris*—Manufacturer.

Artistic clock, in gilt bronze, called the "Three Hours of the Day." Ornamented with Cupids upon a cloud, and resting upon a pedestal of white marble.—P. 1250.—Plate 289.

"The attention of the Jury has been attracted by the bronzes and the works in gilt bronze exhibited by M. Vittoz. They can only speak of the bronzes which are either wholly or partially gilt, to which they are limited by their instructions. They have observed a clock in gilt bronze, called the 'Three Hours of the Day;' it is ornamented with Cupids upon a cloud, and supported by a pedestal of white marble. The Cupids are in bronze, and the style of Louis XVI. is preserved with much taste and care in the execution. The same clock is exhibited in double the size. * * * * * * *

"The articles noticed claim from the Jury a recommendation for a Council Medal."—*Juries' Reports*, CL. 23, p. 515.

1619 GUEYTON, A., 11 *Rue Chapon, Paris*—Manufacturer.

Swords and dagger handles in oxidized silver, chased and ornamented.—Plate 321.

Cigar-cases and snuff-boxes in oxidized silver, chased and ornamented with bas-reliefs representing various subjects.—P. 1254.—Plate 322.

[These works serve as illustrations of value being imparted by labour, rather than by the cost or rarity of the materials. The handles of the swords are adorned with figures, &c., symbolical of the functions exercised by the officials by whom they are intended to be worn.—W. C. A.]

"The variety of objects exhibited by M. Gueyton bespeak great fertility of invention, and a felicitous application of old as well as novel processes. The Jury would mention particularly several boxes and cigar-cases, ornamented with handsome bas-reliefs in cast and chased silver, very light, or produced by the electro-process in silver, and also in copper silvered. * * * *

All these articles, especially those that are chased, and those produced by the electro-process, pertaining at once to works of jewellery and of the silversmith's art, give M. Gueyton a very honourable position among the exhibitors, and have induced the Jury to recommend him for the Council Medal."—*Juries' Reports*, p. 514.

1690A LALANNE—Manufacturer.

A calculating rule, constructed upon new principles, consisting of a graphic table of right lines, to perform all the calculations usually done by a sliding rule: can be executed to within 1-200th of the true result.

1709 BARBEDIENNE & CO., 30 *Boulevard Poissonnière, Paris*—Manufacturers. (Agents, JACKSON & GRAHAM, 37 & 38 *Oxford Street*.)

Ebony bookcase, in the style of the Renaissance, introducing artistic bronzes in its decoration. The figure on the top of the pediment is, "The Thinker," the angles underneath with figures symbolic of "Night" and "Morning;" and are reductions from the sculptures of Michael Angelo on the tomb of Lorenzo de Medicis. The frieze, consisting of birds, fruits, flowers, and animals, together with some other portions in bronze, has been modelled and adapted for the bookcase by M. Clesinger, one of the most eminent sculptors of France. The figures in the niches, and the four panels in the doors of the lower part, are reductions from the celebrated gates of the Baptisterie at Florence, by Lorenzo Ghiberti; the proportions are mathematically exact, and the work is finished with great care. It was of these gates that Michael Angelo said, "They are so beautiful that they might fittingly stand at the gates of Paradise."

The adaptation of artistic bronzes to this beautiful and useful article of furniture has been made with consummate taste and skill, and forms quite a new feature and example, well worthy of study and imitation.—P. 1258.—Plate 334.

"BARBEDIENNE & CO. (*France*, 1709, 1723, p. 1258).—This firm exhibits a magnificent collection of artistic works in bronze, consisting, for the most part, of reductions by mechanical processes from ancient and modern works of sculpture. The processes are the invention of Collas, the bronzes finished by the sculptor Clesinger. The Jury consider that the whole collection displays a carefulness, completeness, and beauty of execution which place it in the first rank. (Joint Medal with Class 26.)"—*Juries' Reports*, p. 502.

[The gates of the Baptistry of Florence and the tomb of the Medicis have long been looked upon as the crowning efforts of their respective designers and fabricators. The names of Lorenzo Ghiberti and Michael Angelo Buonarroti are associated with these and with art in its highest development. Of the Baptistry gates too much cannot be said: they exhibit a luxuriance of fancy and an acquaintance with art which at the present day has no parallel. Seven great Italian artists entered into competition for the execution of the work; but by common consent, and at the request of his brother artists, the palm was awarded to Lorenzo, who at that period was only twenty years of age. Round pictures in bronze, modelled in relief, of subjects taken from the Old and New Testaments, into which Ghiberti threw the most luxuriant framework and decorated mouldings, composed of fruit and flowers: frequently birds were introduced pecking at them. In other portions, heads and masks, and statues of the Evangelists and doctors of the Church were introduced. It is from the panels or compartments of these gates that a selection of four subjects have been made: these are, the Creation, Joseph and his Brethren, the Appearance of the three Angels in the Valley of Mamre, and the Visit of Queen Sheba to Solomon. The tomb of Lorenzo de Medici, the work of Michael Angelo, is described by Vasari with the enthusiasm peculiar to that writer. He writes of the "Thinker," (the figure of Duke Lorenzo,) as "thoughtful and reflective, with a form of so much beauty that eyes of mortal could see nothing better;" and of "Morning," or Aurora, as—"A small female form, well calculated to awake deep melancholy in the soul, and to make the art of sculpture cast down her chisel." "Night" he characterizes as a statue not rare but unique; and adds, "Not only is there here the repose of one who sleeps, but the grief and regret of one who has lost a great and valued possession." From such elevated materials as these has the selection been made to adorn the ebony cabinet of the exhibitors. Wrought by artistic hands, its exquisite beauty delights the eye, while it elevates the mind by referring it back to the source whence the subjects introduced upon it were derived.—W. C. A.]

SARDINIA.

80 **Strauss, Jacob**, *Turin*—Manufacturer.

Large pipe-bowl, in white talc, carved and ornamented with figures, &c.—P. 1304.—Plate 325.

[Talc is a mineral substance, which from its peculiar composition is carved with great facility, even by means of the most common cutting tools: it is used for small ornamental carvings, and, as in the present instance, for pipe-heads. It is found in Scotland, Cornwall, Switzerland, &c. Silica and magnesia are the greatest amount of the substances of which it is composed.—W. C. A.]

"Strauss, J., Turin (Sardinia, 80, p. 1305). Prize Medal; for several elaborately-carved meerschaum pipe-bowls, the sculpturing of which is very exquisite."—*Juries' Reports*, p. 673.

PORTUGAL.

1300 **Parr, Frederick**, *Haynes Hill, Taunton, Somerset.*

Feather flowers, manufactured by the nuns of Santa Clara (Funchal), Madeira, but principally by Donna Maria Clementina, a recluse in the convent.—P. 1318.

[The construction of the stems, &c., in the feather flowers is similar to those in the ordinary artificial varieties sold, the only difference being that the feathers take the place of what in the latter variety is composed of silk, muslin, or gauze. The beautiful hues of the plumage of tropical birds, rivalling the brilliancy of colour displayed in the botanical world, render them peculiarly fitted for the purpose. The following animated extract from the 'Household Words,' as to the manufacture of the feather flowers of Rio de Janeiro, may not be deemed out of place. The writer describes the interior of the workshop, and proceeds as follows:—"Baskets full of feathers, each of some colour and shade of the richest dyes, were arranged down the centre of the room. From these their nimble fingers were engaged in fashioning exact representations of the most gorgeous tropical flowers, as well as roses, carnations, tulips, camellias, and all the garden favourites of Europe. Beside the basket of feathers, all around hung perches and cages containing parrots and other birds of great value even in Brazil; numbers flew about the room like tame pigeons, and every now and then there was a regular chase and flutter, when some feather had to be plucked from a living subject to finish the wreath of a queen or a princess." —W. C. A.]

1301 **Forrester, Joseph James**, *Oporto.* Member of the Royal Academy of Sciences of Turin, F.R.G.S., of London, Paris, and Berlin—Proprietor.

Maps of the surveys of the wine districts of the Alto Douro and of the River Douro, from the frontiers of Spain to the ocean.

1302 **Ayres de Sa Nogueira**, *Estremadura Termo de Lisbon*—Producer.

Specimens of raw cotton.

1303 **Gonsalves, Geneveva**, *Madeira*—

Specimens of dried ferns, the growth of the country.

SWEDEN AND NORWAY.

118 **Kullgrin, C. A. Uddewalla**, *Sweden*—Manufacturer.

Colossal monument of granite, in form of a cross, cut out of a single block. The stone remarkably fine-grained, and exhibited as a sample both of quality, of material, and of workmanship.

TURKEY.

1722 **Sadik Aga** (Head of the Corporation of Saddlers), *Constantinople*—Manufacturer.

Turkish saddle, pistol-holsters, and saddle-cloth; velvet and cloth embroidered in gold.—P. 1397.—Plate 292.

[The brilliancy, and in many instances great beauty, of the Oriental embroidery, &c., is to be found in the perfect propriety and fitness of the several ornaments introduced to the surface which they are intended to decorate; they even suggest, from the want of shadow, the presence of a plane upon which we may be seated, or upon which we can tread with perfect security. The flowers attempt not to vie with their prototypes in nature, but are conventional representations, sufficiently near to suggest an image to the mind, without destroying the unity of the objects they are intended to decorate.—W. C. A.]

1709, 1710 **Avedik**, *Constantinople*—Manufacturer.

Narguilés or water-pipes in silver, with amber mouth-pieces, leather marpitches, and red morocco cases.—P. 1399.—Plate 290.

"In the Turkish collection are numerous rich examples of the Narguilé, or water-pipe, in some cases composed of silver, and ornamented with precious stones. The flexible tube, or marpitch, used with the Narguilé, is formed of a spiral wire covered with leather, over which another wire is coiled, so as to fall between the interstices of the inner spiral. The Turks, in smoking the Narguilé, inhale the fumes into the lungs, and never consume the last portions as the tobacco, as the smoke becomes too pungent. There are numerous examples of the long pipe, or Kablioun, and the short pipe, or Chiboque, with the cherry-tree, jasmine, wild-plum, and ebony tubes; and likewise the crude gimblets with which these tubes, five feet or more in length, are bored. In boring the tube, the Turk places it above the gimblet, and thus gets quit of the chips; after boring the hole half way he meets it from the other end of the stick. The wild cherry-tree, which is principally used, seldom occurs free from defects in the bark, to repair which, so that the reparation cannot be discovered, is the chief difficulty. There are examples of Lulés or pipe-bowls used with these tubes; they are composed of the red clay of Nish, mixed with the white earth of Roustchouck. They are very graceful in form, and are in some cases ornamented with gilding; but as the Turks prefer a fresh bowl each time, the plain ones are chiefly employed on the score of economy. It is not unusual in Turkey to compute distances, or rather the duration of a journey, by the number of pipes which might be smoked in the time necessary to accomplish it.

"The Imames, or amber mouth-pieces, exhibited in the Turkish section, surpass those of any other in splendour. One exhibitor sends four of choice amber, which are worth together 1000*l.* Besides these there are three groups from distinct exhibitors. In the case of one was noticed an amber cigar-tube, which is one of numerous instances of the innovations upon Turkish customs by the introduction of European ideas."—*Juries' Reports*, p. 672.

1794 **Minister of Commerce.**

Sledge made at the School of Art, Jassy, Moldavia.—P. 1398.—Plate 301.

[This object has a peculiar appearance about it, arising from the intermixture of Oriental ornament with English construction, as shown in the grasshopper springs, trace-bar, the lamp, &c. The termination of the several ornamental scrolls, with the head of the cow, is peculiar, and, with the mode of stuffing and material employed for covering, mark its origin.—W. C. A.]

CHINA.

9 **Hewett & Co.**, 18 *Fenchurch Street*—Manufacturer.

Set of carved ivory chessmen, mounted on carved ivory balls, with smaller balls inside, carved from a solid piece of ivory.—P. 1421.—Plate 302.

27 **Rawson, C.**

Chinese carved ivory ball, containing fifteen smaller balls, all carved from a solid piece of ivory.—*China*, p. 1424.—Plate 295.

[These puzzles to ordinary observers display, in a very peculiar manner, the patience, industry, ingenuity, and skill of the Chinese in the art of working in ivory. The question as to how the interior balls got in, is best answered by saying that they never got out, but were separated from the solid sphere of ivory, of which they were made, by a series of hooked or bent tools, the same being introduced while the ivory is running in a lathe; at the several perforations or large holes, which is observed on the outer surface, and which it will be found correspond to others in the concentric balls in the interior. The process of manufacture may be briefly described thus:—a solid block of ivory is drilled with four or more holes, which pass through the centre; the ivory is then fixed on a peg chuck, and through the hole, directly opposite, a small bent tool is introduced, by which a portion of the centre or smallest ball is turned. It will easily be understood that by a succession of change of the mandril and tool to the various holes, all the balls in turn become loosened: the outer ball and one or two next in order are more or less carved, ornamented, or perforated.—W. C. A.]

31 A **Dudgeon, P.**, *Hong Kong*—Producer.

The "Celestial Cup," in silver, presented at Hong Kong races, 1850. Silver tea-pot and other articles.—P. 1424.—Plate 313.

[This cup is remarkable as being characteristic of the external forms and style of ornamentation adopted and introduced by the Chinese; the several animals, flowers, and leafage are conventional in character, and harmonize with the several curves or surfaces on which they are applied. The general form of the vessels appear, however, to be rather more graceful than those produced by the natives.—W. C. A.]

UNITED STATES.

65 **Hussey, Obed**, *Baltimore, Maryland*—Inventor, Patentee, and Manufacturer.

Reaping and mowing machine.—Plate, p. 1437.

"We have then two good American reaping machines. Their respective merits time will discover. At present we only know that Mr. McCormick's machine is best for barley and oats, when not intended to be bound up in the sheaf; Mr. Hussey's for corn laid by the weather, or standing upon steep ridges. Mr. Hussey's can cut rushes, as was shown in Windsor Park. Mr. McCormick's has received a prize this autumn in the United States for cutting prairie grass, competing with three others."—*Juries' Reports.*

73 **McCormick, C. H.**, *Chicago, Illinois*—Inventor.

Virginia grain reaper.—Plate, p. 1437.

This machine is worked by four horses throughout the day, and is attended by a man or boy to drive the team, and a man to take the grain from it into parcels of suitable size for binding. Six to eight men are required to bind and shock the grain. This is the estimated labour of harvesting wheat that stands up and yields from 20 to 30 bushels per acre. If the wheat be heavier and fallen, the operation will be more difficult, and the speed retarded.

The reaper is stated to cut from 1½ to 2 acres of wheat or other small grain per hour (equal to 15 or 20 acres per day), to save at least three-fourths of the grain that would be scattered by ordinary cradling; and it is warranted to be durable. It is constructed to cut as high or as low as required, and the saving of the grain by it over that cut by the cradle, is estimated at not less than one bushel per acre, and in some situations more; it is not liable to be obstructed by weeds.

[The following account of this machine is extracted from a published report of its performance on trial by Philip Pusey, Esq. The machine, drawn by two horses, and carrying two men, a driver and a raker, cut the wheat about 8 inches from the ground with the utmost regularity. The exhibitor informed us that, by a slight change of construction, he has made the implement cut 2 inches nearer the ground. The horses found the work light, though the machine was cutting at the rate of 1½ acre per hour, making 15 acres per day of 10 hours. The raker, standing behind the driver to rake the cut wheat from the platform, certainly had to exert himself; but it is obvious that he and the driver, who has only to sit on the dicky, might very well exchange places from time to time. As one cannot put too high a price on the labour of farm horses at such a time, it is plain that a great saving must be effected by this machine, and every farmer can calculate it for himself, as he will also see the advantage of being rendered independent of the arrival of strangers to get in his corn, who cannot always be found. This trial was witnessed by many farmers, and no fault was found with the work. The land, I should say, however, being stock land, is even; where ridges and water furrows exist, some difficulties seem to arise. But on this level land it was wonderful to see a new implement working so smoothly, so truly, and in such a masterly manner. The fact is, however, that it is not an untried implement. Though new in this country it has been used for some years in America, where experience has enabled the inventor to correct, in successive seasons the defects invariably found in new implements. It is certainly strange that we should not have had it over before, nor indeed should we have it now but for the Great Exhibition, to whose Royal originator the English farmer is clearly indebted for the introduction of the most important addition to farming machinery that has been invented since the threshing machine first took the place of the flail."—*Extract from the Journal of the Royal Agricultural Society*].—*United States.*—Pp. 1437, 1438.

[Though by no means the first to originate the construction of a reaping machine, it would seem that America has been the first to all but realize the most perfect machine of the kind, had not evidence to the contrary been in existence. This will appear from the following facts:—

During the last sixty years, various attempts have been made in England—they have only been, however, comparatively successful. The most perfect previous to those introduced by Messrs. McCormick and Hussey from America, were those of Mr. Smith of Deanston, the Rev. Patrick Bell of Carmyle, in the county of Forfar, and Joseph Brown of Raby, Cumberland. Mr. Smith's was introduced in 1815, in competition for a premium of £500, offered for an implement of the kind by the Highland Society: the machine did not in the opinion of the judges comply with the conditions laid down, the award was therefore not made, and, as may be supposed, it never became a general favourite with the farmer. The cutting apparatus consisted of a plain smooth-edged annular knife, 6 feet diameter and 6 inches broad, attached by arms to an axle with which it revolves; the cutter was surmounted by a light sheet-iron drum, or frustum of a cone, 3 feet high, which served as a "gatherer," and this was attached to and revolved along with the cutter and its axle; the motion was derived from a pair of carriage wheels, which carried a bevel-pinion and communicated motion to the knife. Mr. Smith after this time made several improvements upon it, and again exhibited it at Ayr, in 1837. Bell's machine acted upon the clipping principle, the cutter being a series of scissors, the upper blades of which were immoveable, and of the form of an isosceles triangle, whose height is 10 feet, and base 4 inches; adapted to cut on both edges. The lower blades were of similar form, each jointed on a pin, in a position corresponding to the space between the upper blades; their shanks, or handles, jointed to a traversing bar, were put in motion by a crank: the motion was communicated as in Smith's, and the gathering of the grain was accomplished by an endless web; it received the grain as it fell from the cutter, and deposited it in the form of a continuous swathe. This machine wrought admirably where the corn stood upright: the objections to its use were the complicated construction of the cutter. This machine appeared in 1827 and 1828, and was rewarded by the Highland Society, in 1829, with a premium of 50*l*. Mr. Mann's machine was completed in 1826: it was more compact than the preceding, and more simple in its movements; it was drawn by one horse walking before the machine, and by the side of the standing corn, cutting a breadth of ten acres in ten hours. The cutter was on the revolving principle, but not circular; it formed a polygon of twelve sides, each side being a separate blade, easily removed and changed: the gatherer had a revolving drum with rakes, which made 28 revolutions in a minute, the cutter made about 200; a comb was required to strip the corn from the rakes; the motion of the cutter and rakes was obtained from one of the carriage-wheels, as in the others, but here they were communicated by pitch-chains, and the front part of the machine, supported by a castor-wheel, to the stem of which the horse-shafts were attached, the castor-wheel running by the side of the standing corn. McCormick's, or that for which the Council Medal was granted in the Great Exhibition of 1851, is distinguished by the great simplicity of its cutting part, and resembles a straight saw vibrating rapidly from right to left; the teeth inclining alternately in each direction, so that at every vibration, half of them are inclined in the direction of the motion. The Jury in their award point out that some amendment is required to fit them for cutting the additional number of straws in a given space. "The yield in England nearly doubles that of America," they must therefore be adapted to the superior farming they will have to encounter.

It may not be out of place here to remark, that in consequence of the exaggerated reports as to the capabilities of the American machines having reached the ears of Mr. Bell, he was induced to publish a statement of the performance of his "reaper;" by which it appears that his brother, Bell of Inch Michael, in the Carse of Gowrie, has done all his harvest-work with it for the last fourteen years. At the commencement of the season it is examined to see that it is in working trim: he then gives it over to one of his ploughmen, who has never found any difficulty in its management. The principle of the American reaper is identical with those of English construction made previously, several of which were imported to the United States. For the information contained in these two notes we are indebted to "The Book of the Farm," by Stephens, and to the Lecture delivered by John Wilson, Esq., at the Society of Arts, upon Agricultural Products and Implements.—W. C. A.]

"As to the practical working of the reaper, two horses drew it at the trial very easily round the outside of the crop until they finished in the centre, showing that they could cut easily fifteen acres in ten hours. One man drives sitting, and another stands on the machine to rake. It is hard work for him, and the men ought sometimes to change places. The straw left behind at the trial was cut very regularly lower than by reaping, but higher than by fagging. The inventor stated that he had a machine which would cut it two inches lower. This is the point, I should say, to attend to, especially for autumn cleaning. Though it seems superfluous to bring this machine to the test of economy, we may estimate the present cost of cutting fifteen acres of wheat, at an average of 9*s*. an acre, to be 6*l*. 15*s*. Deduct for horses and men 10*s*. 3*d*., and for binding 2*s*. 6*d*. per acre, the account will stand thus:—

		£. *s*. *d*.
"Average cost of reaping fifteen acres, at 9s. per acre		6 15 0
Horses and men for reaper . .	£0 10 0	
Binding fifteen acres, at 2*s*. 6*d*. per acre	1 17 6	
		2 7 6
Saving per acre, 5*s*. 10*d*.		4 7 6

"The saving of wages, however, would of course be an imperfect test of the reaper's merits, since, in bad seasons and late districts, it may often enable the farmer to save the crop."—*Juries' Reports*, Cl. 9, pp. 231, 232.

321 Colt, Samuel, *Hartford, Connecticut*—Inventor and Manufacturer.

Specimens of repeating fire-arms.—Pp. 1454, 1455.

[These arms are constructed on the principle of a patent which was granted to the inventor in 1835; but since that time many improvements, which also form the subject of patent, have been added. The object of the inventor was to construct the arm, so that it might not only be an efficient weapon of defence, as respects its repeating powers, but also admit of its being fired with the same precision as ordinary weapons. For this purpose the axis of the revolving breech was set in the same vertical plane as the barrel in a right line, preventing the necessity for any part protruding from the frame of the arm. The illustration shows the improvements applied to a pistol and to a rifle. Fig. 1 is a side view of the pistol; fig. 2 is a longitudinal section taken through the middle of the barrel and revolving breech; figs. 3 and 4 are end views of the nipple and charge ends of the breech; and fig. 5 is a side view of a rifle: *a* is the revolving breech having six chambers to receive charges. It is mounted on an axis *b*, fixed to the metal frame *c*; *d* is a lever provided with a

Fig. 3.

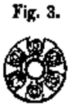


Fig. 1.

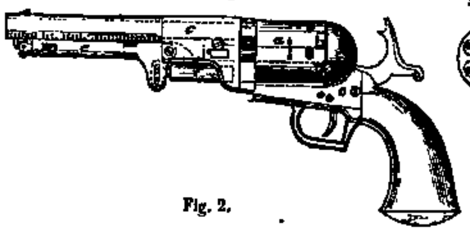


Fig. 4.

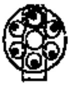


Fig. 2.

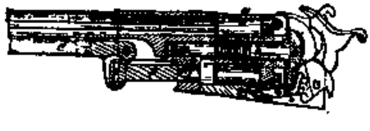
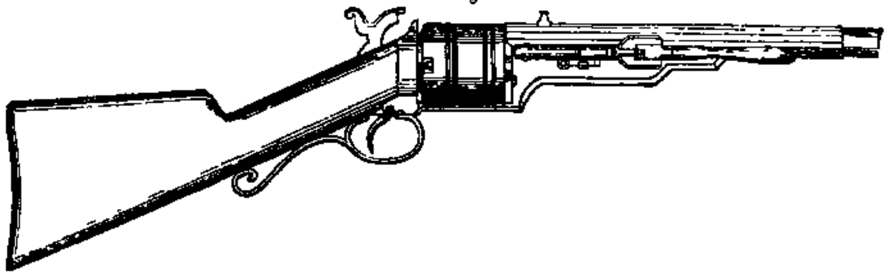


Fig. 5.



Colt's Repeating Fire-arms.

raised pin, which enters the sunken holes in the periphery of the breech, as the charges are severally brought opposite to the barrel, and thus prevents the breech from moving from its proper position, when it is intended to effect a discharge of the arm. When the hammer is on half cock, as shown at fig. 2, the breech is free to turn round to receive the charges which are thus severally brought under the action of the ramrod *f*. This rod is loosely joined to a lever *e*, which is attached to the frame *c*, and hangs below the barrel: it is attached thereto at its outer end by a spring catch. The holster pistol was fired twelve hundred times, and the belt pistol fifteen hundred times, cleaning but once a day. Neither of the pistols appeared to be injured by the firing. The penetration of Colt's holster pistol was found to be through seven inches of board, and his belt pistol through six, while the highest penetration of the common dragoon pistol was only through five inches.

The weight of the holster and belt pistols were respectively 4 lbs. 4 oz. and 2 lbs. 6 oz.

Weight of balls, 146 grs. and 83 grs.

Weight of powder, 30 grs. and 20 grs.

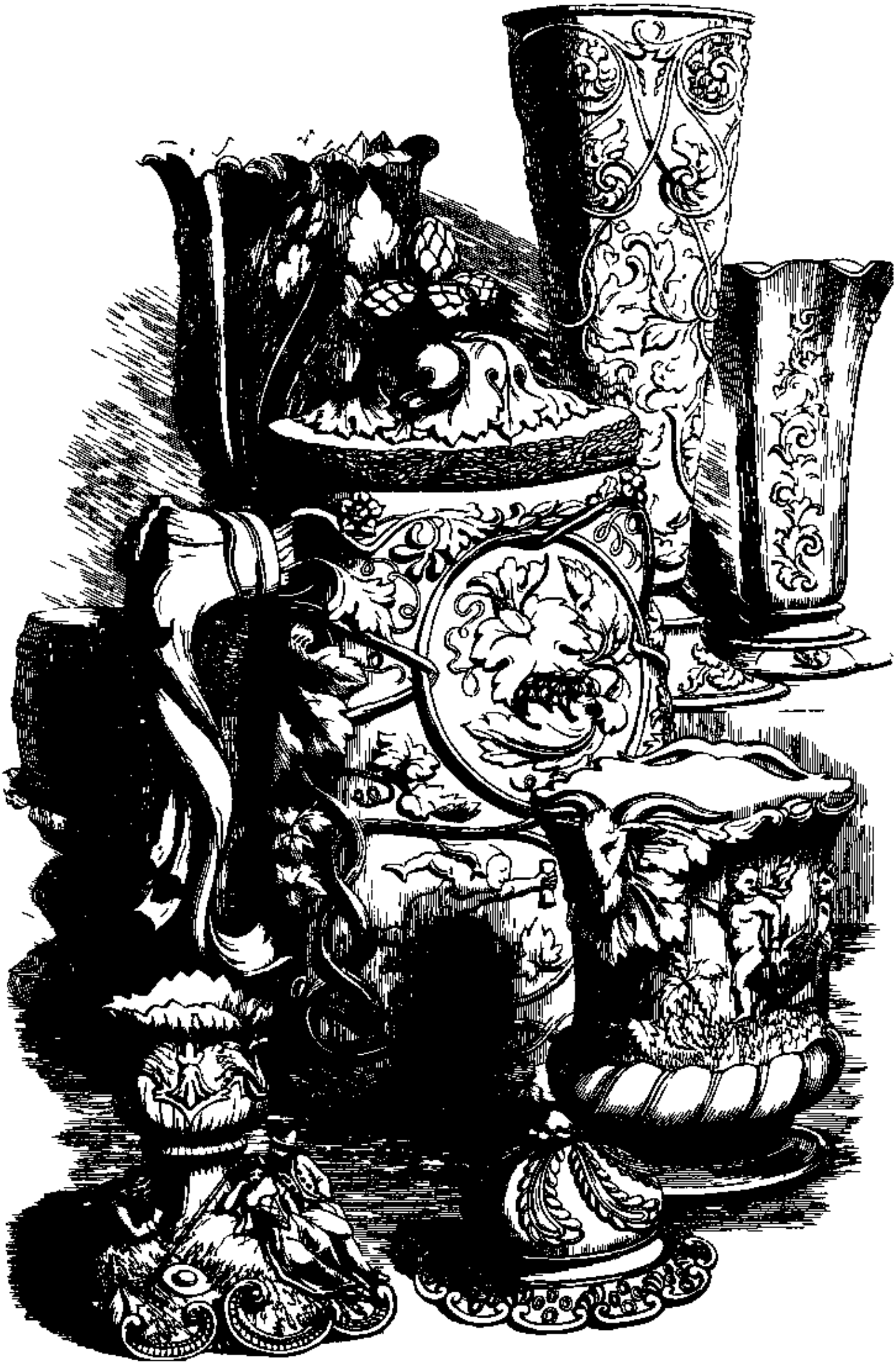
All the cavalry and mounted riflemen of the United States are now supplied with these arms. A considerable number of them were taken from the Exhibition, and sent for trial, in Her Majesty's Service, to the Cape of Good Hope, to be used against the Kafirs. Others are now undergoing a series of experiments before the Honourable Board of Ordnance, at Woolwich. Among the specimens exhibited were the revolving charge pistols. It has been proved in actual service, that the effectiveness of a troop of horse armed with these weapons, which discharge six shots without reloading, has been tripled. The following extract from a Report of a Committee appointed by the United States Senate, relates to these weapons:

"These repeating-arms, first constructed by Mr. Colt, were too complicated and easily deranged to be fit for rough service. Previous, however, to the year 1840, they had been so much improved, that many highly-experienced officers recommended their trial in the army and navy. In the inspection returns of Major Thornton, a member of the Board of Ordnance, he reports that only one pistol failed in the inspection trial, out of the last two thousand and eighty-two tested in 1850, and this failure was attributed to the imperfect metal of the particular arm. These improvements have encouraged the department to adopt them gradually into the service: first, in the ranger troops employed in Mexico, and afterwards in the mounted riflemen."

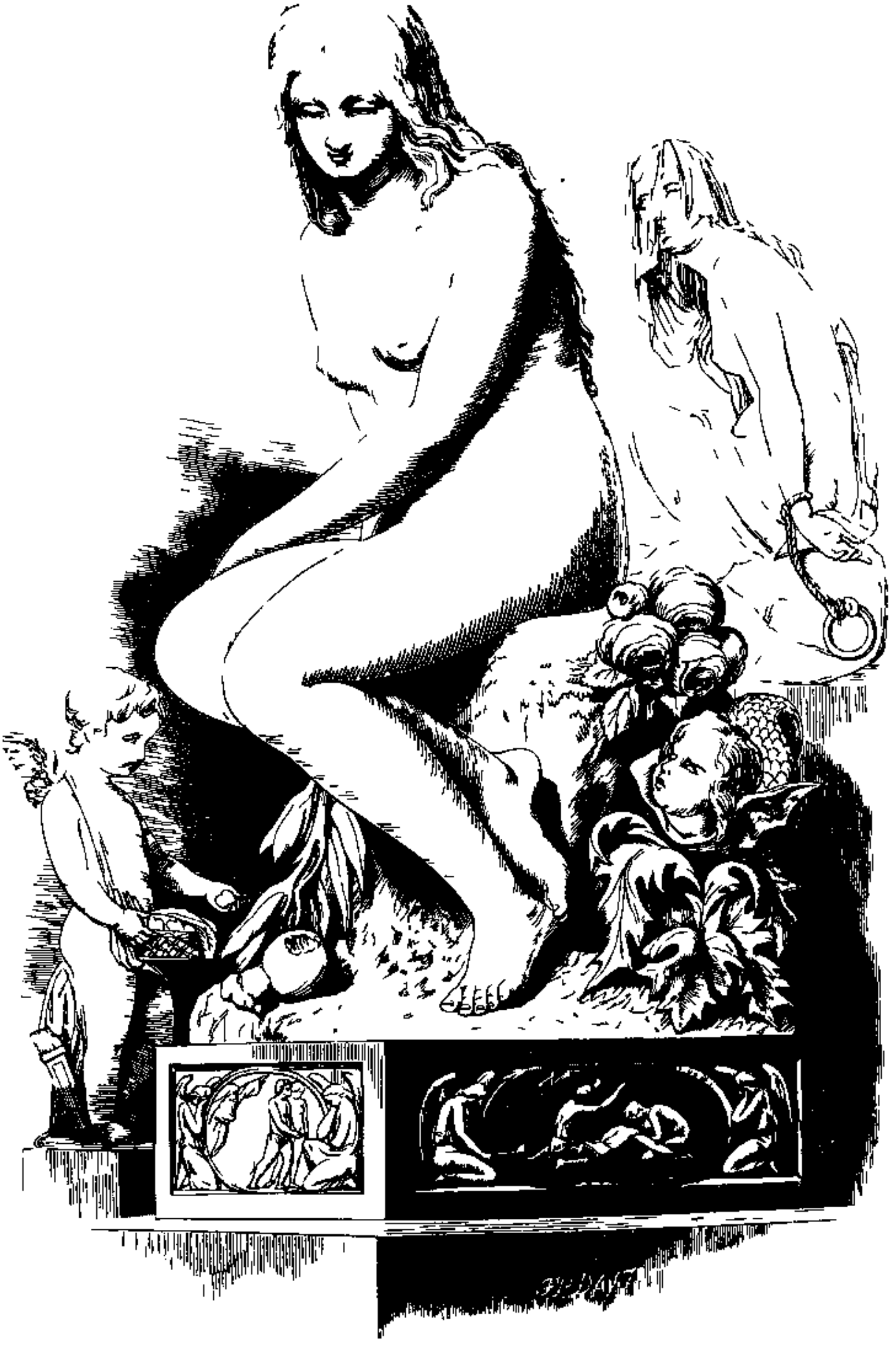
Experience, it appears, has proved that it is difficult to contend successfully against savages with the usual arms of mounted men, the ordinary dragoon pistol, and Hall's carbine. General Harney employed Colt's pistol successfully in Florida; and those officers who have recently returned from the frontier state that a dragoon armed with Colt's repeating pistol and a musquetoon, or perhaps Shaps' rifle, would be the most efficient and most formidable for frontier service; particularly when encounters with the savages occur, as they generally do, in prairies, defiles, and mountain gorges.]

635 **Ball, Tompkins, & Black**, *Broadway, New York*—Manufacturers.

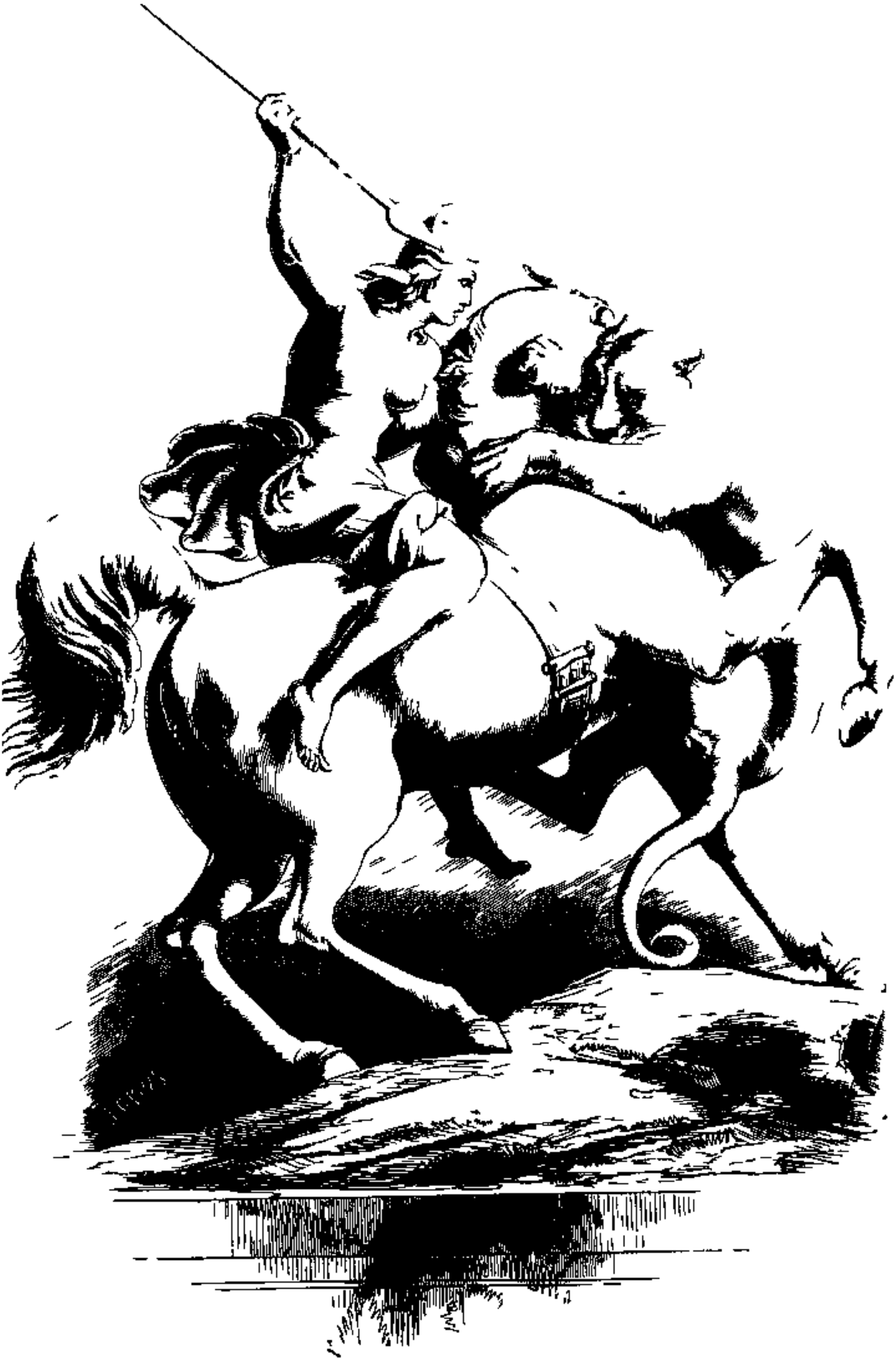
Massive gold tea service made from Californian gold, and presented to E. T. Collins, Esq., of New York. In three months from the time that the ore was taken from the earth, the service was manufactured and presented to Mr. Collins. (Placed in the Main Avenue East.)—P. 1450. —Plate 394.



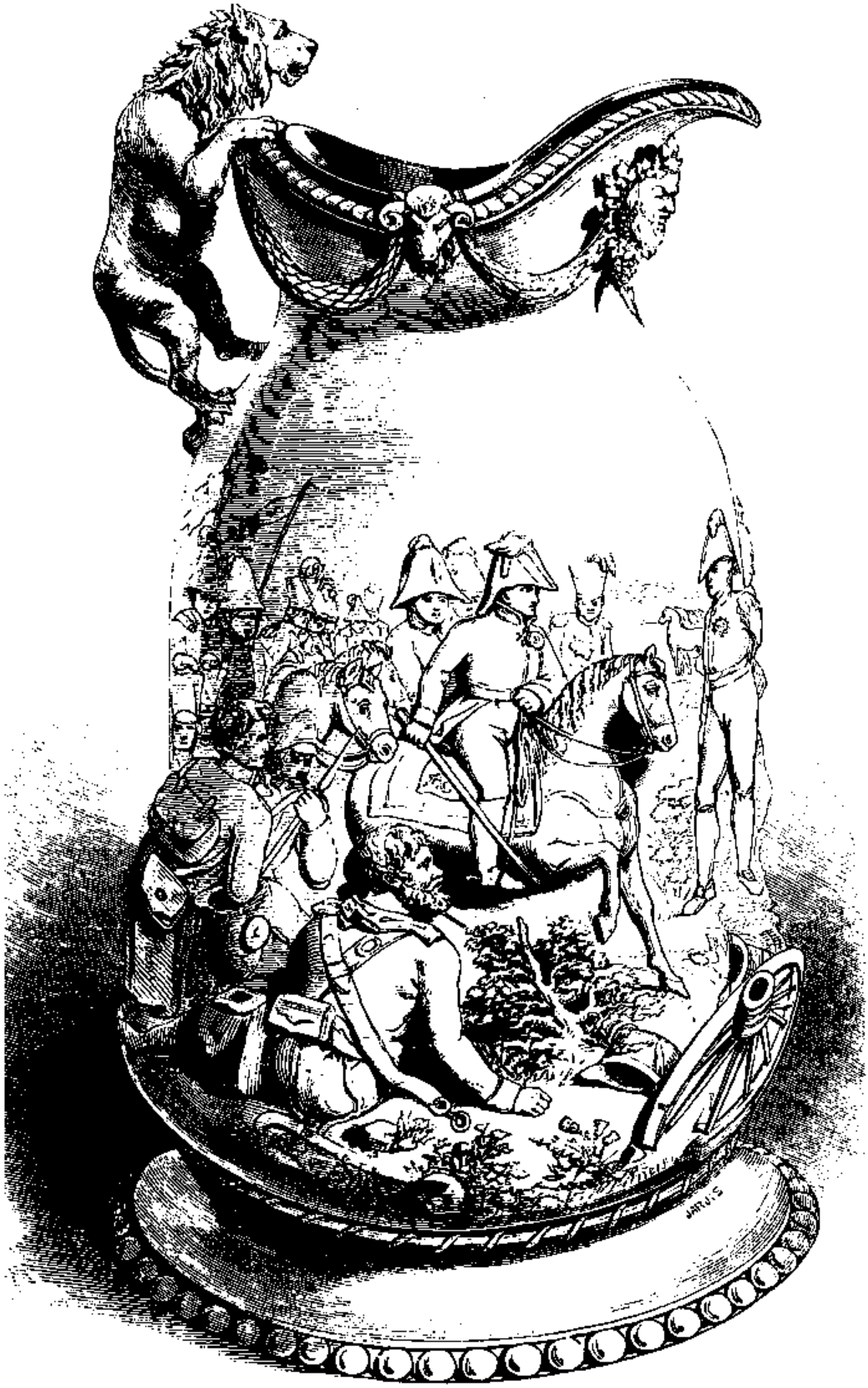
AUSTRIA 614 —SYDEROLYTE-WARE WINE JUG, FLOWER VASES, INKSTANDS, ETC.
SCHILLER AND GERBING, BODENBACH



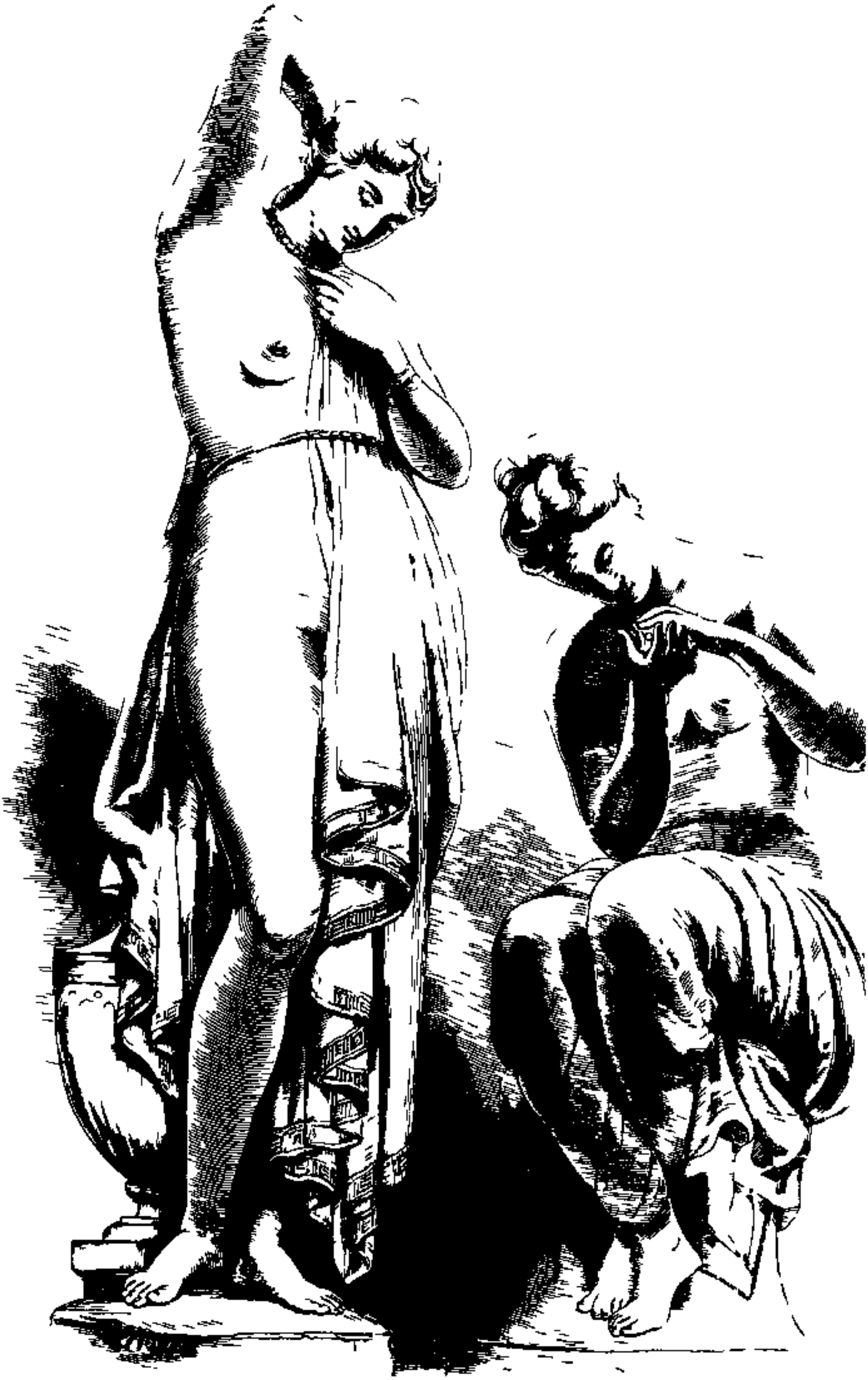
AUSTRIA, 746.—EVE AFTER THE FALL, CIRCASSIAN SLAVE, AND CUPID—STATUES IN MARBLE. R. MONTI, MILAN AND GREAT MARLBOROUGH STREET, LONDON



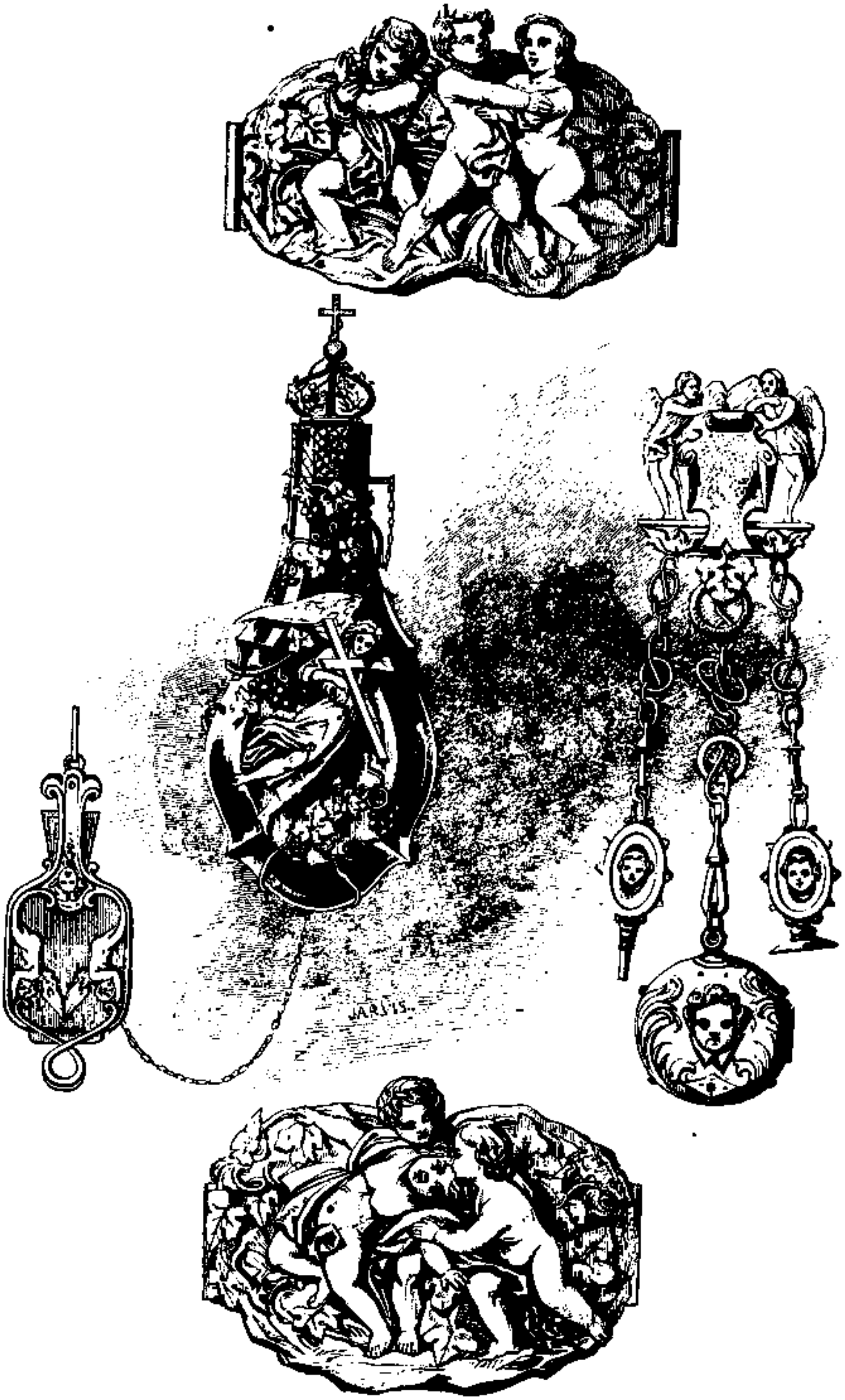
GROUP IN ZINC AND BRONZE—AN AMAZON ATTACKED BY A TIGER PROF KISS PRUSSIA



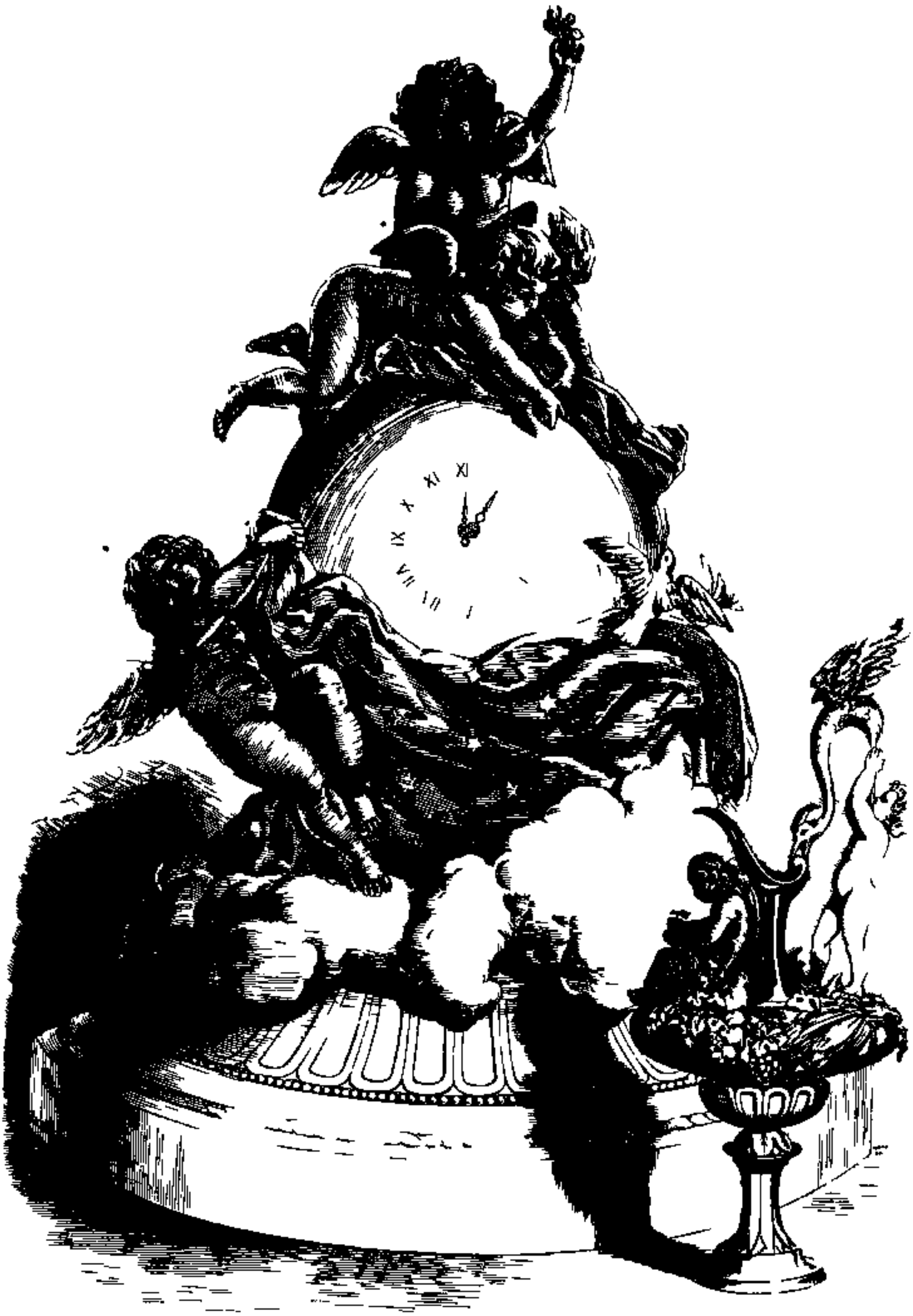
IVORY TANKARD. L. W. SCHULZ, MEININGEN. ZOLLVEREIN.



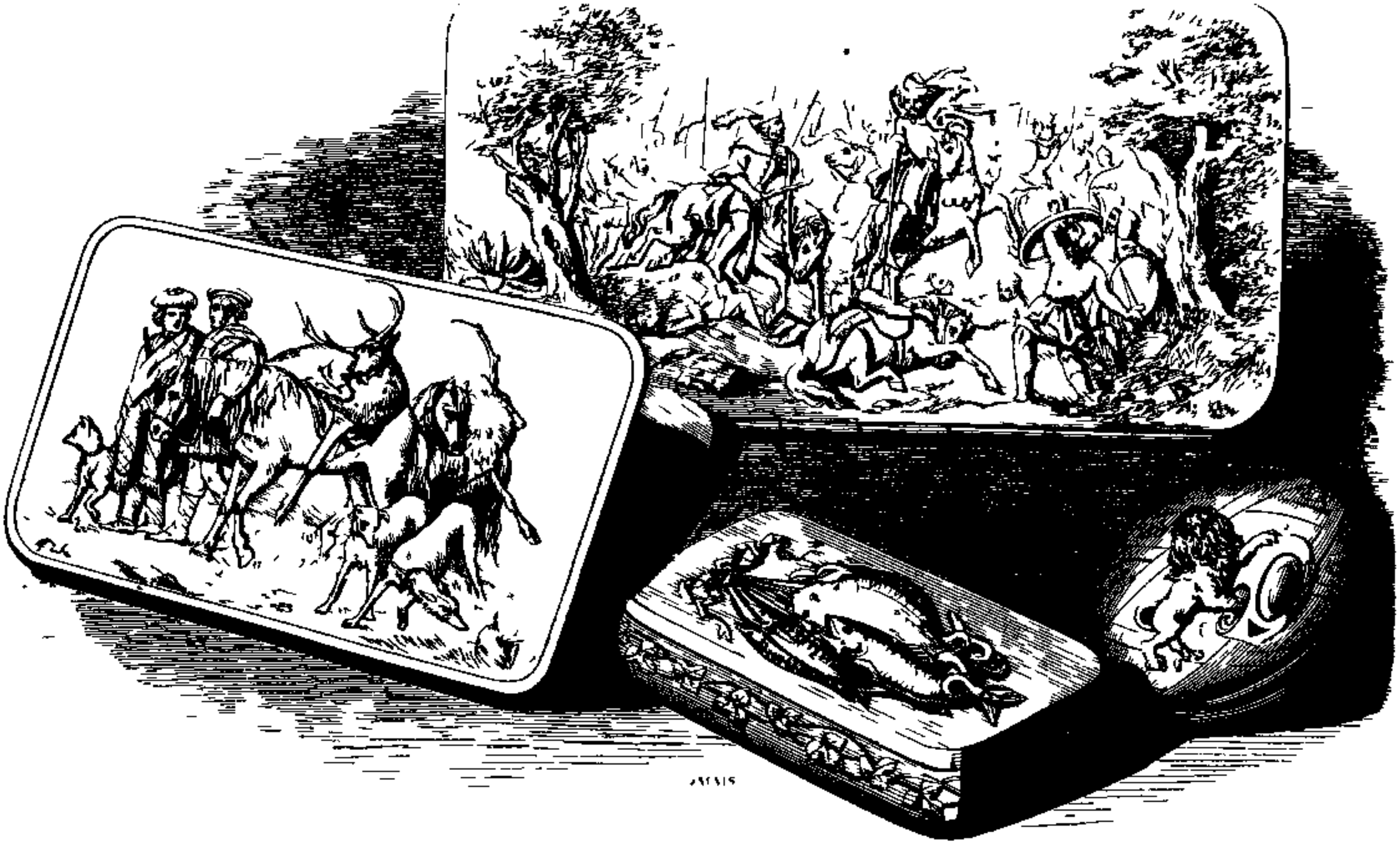
FRANCE, 1407.—PHRÉNE. STATUE IN MARBLE. STATUE OF GIRL AND BUTTERFLY. J. PRADIER



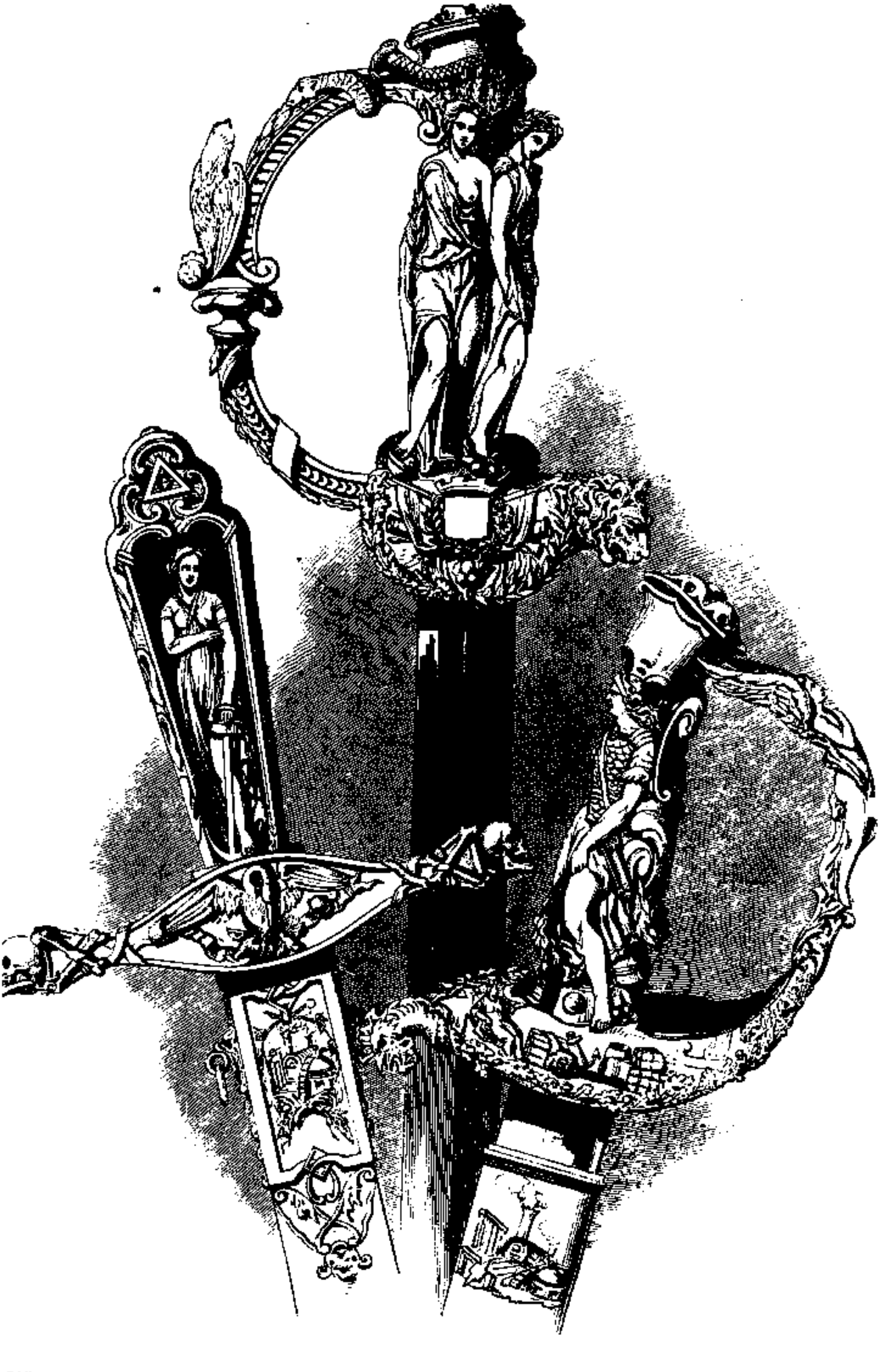
308. FRANCE, 1465.—BRACELETS, SCENT-BOTTLE. EYE-GLASS, AND BROOCH. RUDOLPHI, RUE BRONCHET, PARIS.



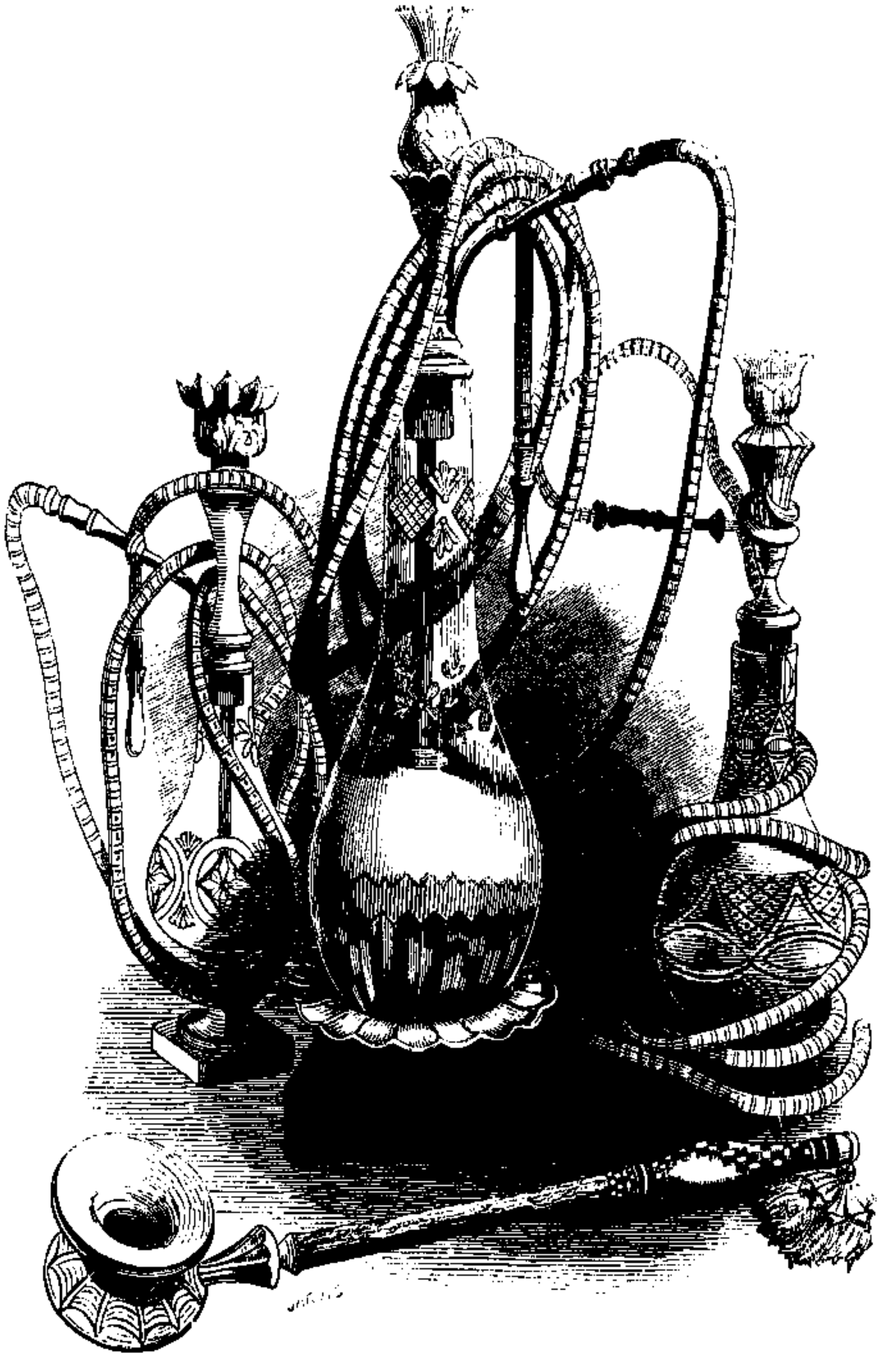
ARTISTIC BRONZE CLOCK AND CUP VITTOZ FRANCE



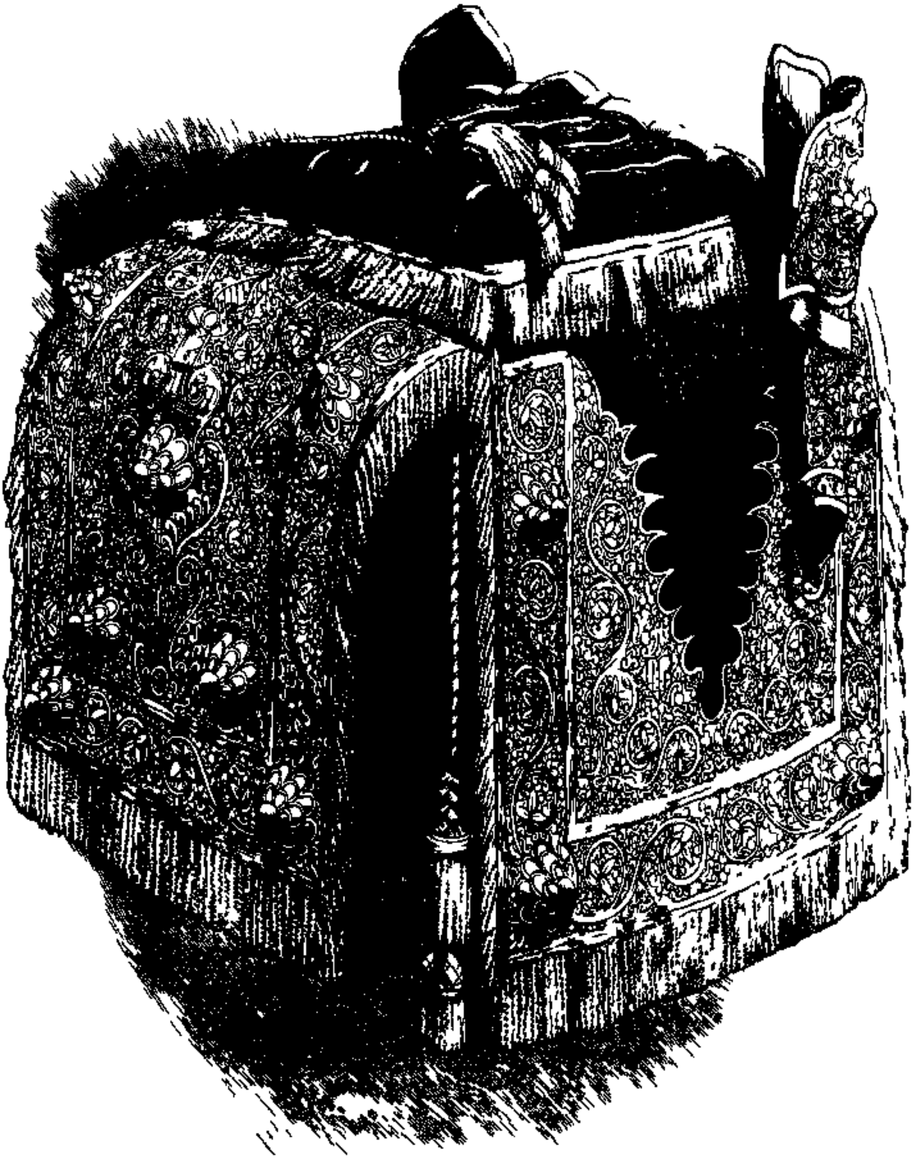
FRANCE, 1619.—SNUFF-BOXES AND CIGAR-CASES, IN OXIDIZED SILVER. A. GUETTON.
(COUNCIL MEDAL.)



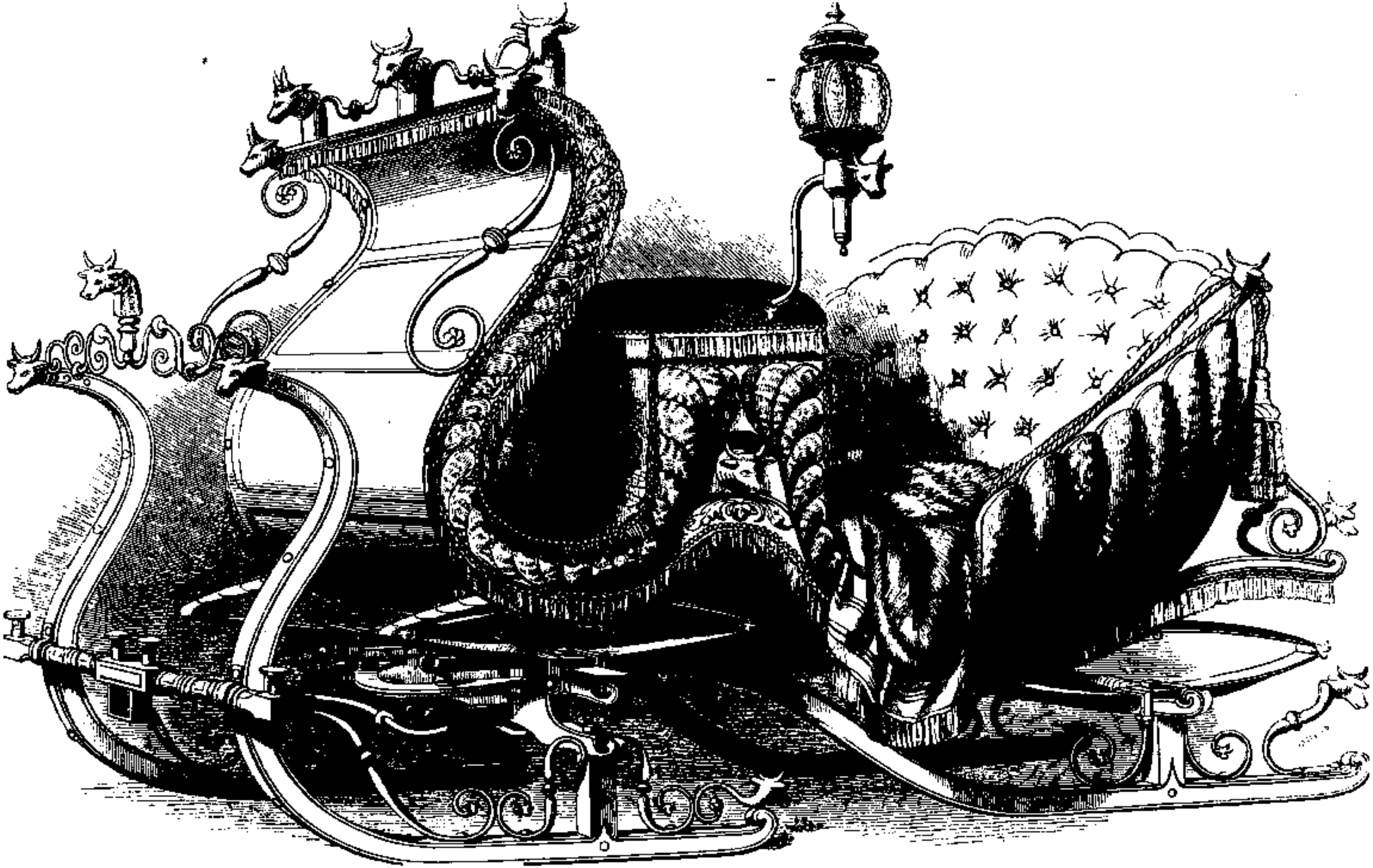
315. FRANCE, 1619.—SWORDS AND DAGGER, IN OXIDIZED SILVER. A. GUEYTON.

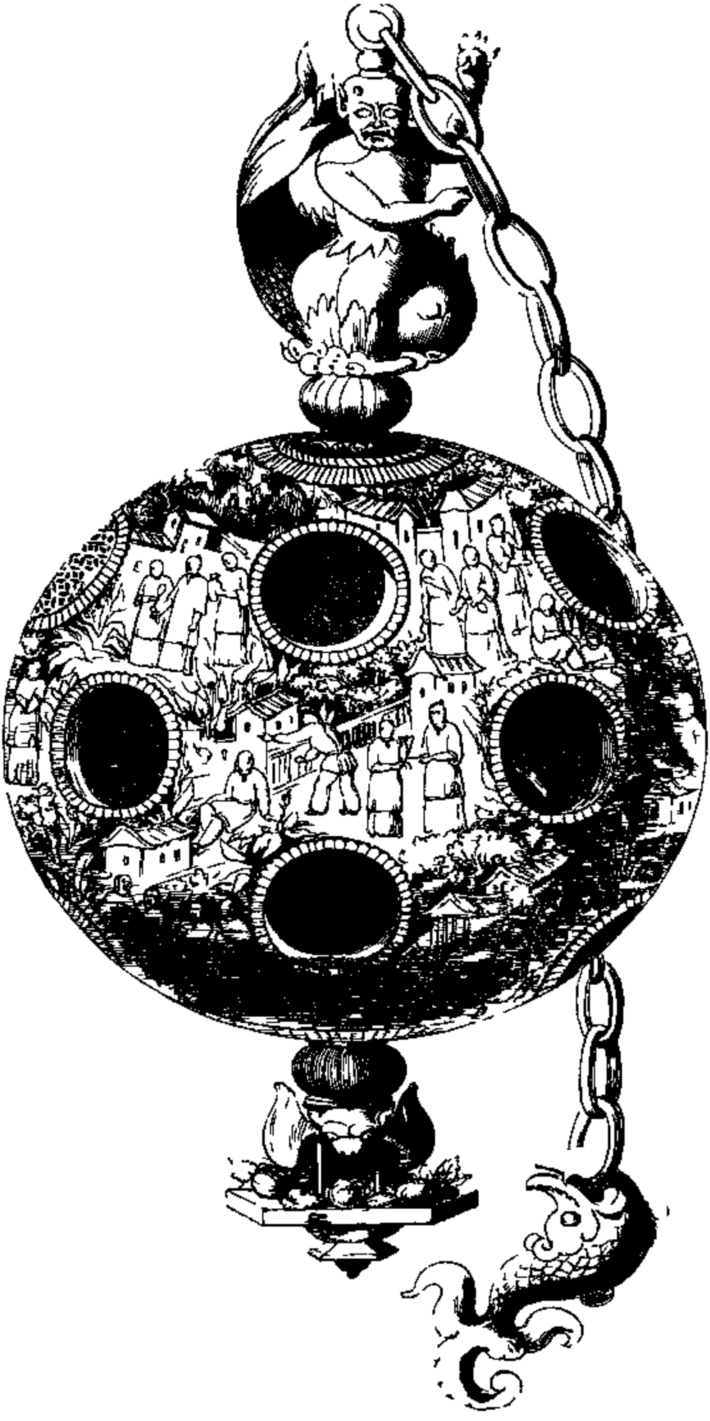


290. PIPES AND MARPITCHES, ORNAMENTED AND GILT. TURKEY.

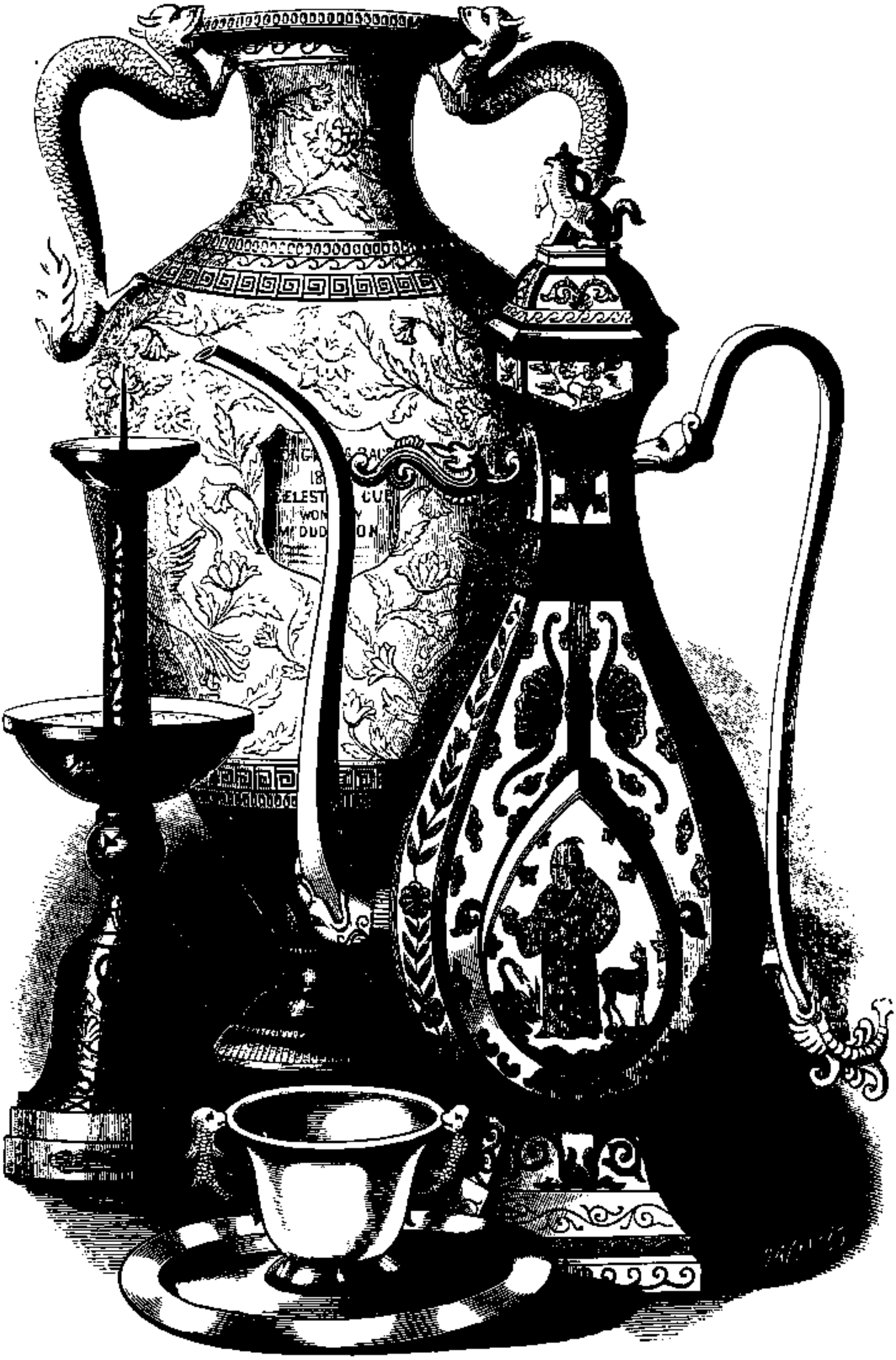


292 VELVET SADDLE, SADDLE-CLOTH, AND PISTOL HOLSTERS, EMBROIDERED WITH GOLD. TURKEY

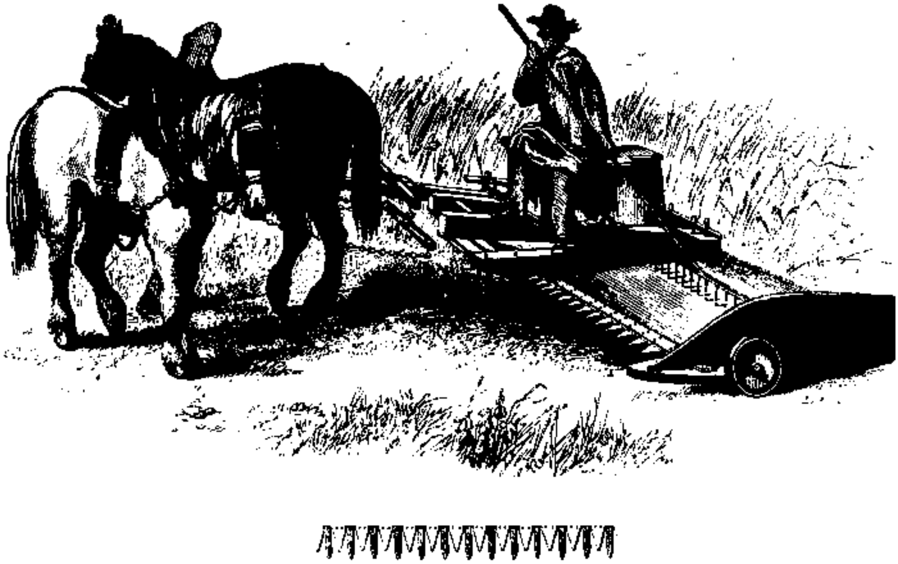




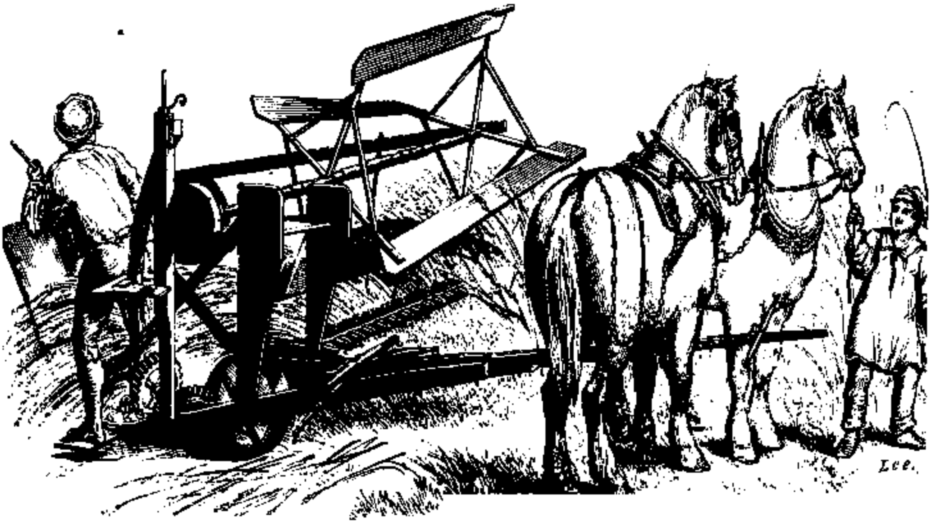
205 CARVED IVORY BALL, CONTAINING FIFTEEN OTHER BALLS C RAWSON CHINA



313. CHINA, 31A.—HONG KONG RACE-CUP, AND OTHER ARTICLES, IN SILVER.



HUSSEY'S AMERICAN REAPING MACHINE.



M'CORMICK'S AMERICAN REAPING MACHINE.

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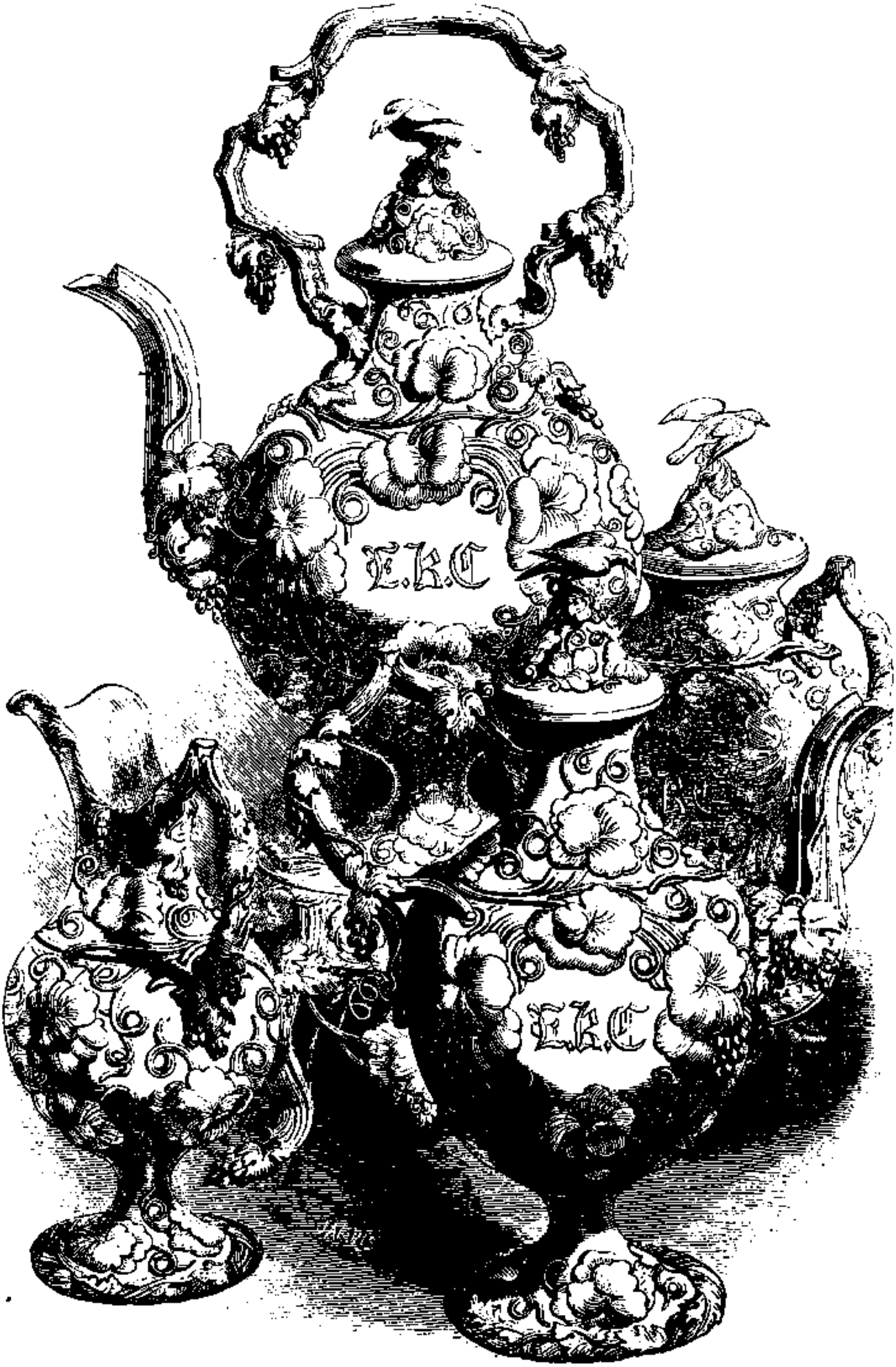

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FIRST REPORT

OF

THE COMMISSIONERS

FOR THE

EXHIBITION OF 1851,

TO THE

RIGHT HON. SPENCER HORATIO WALPOLE, &c. &c.

ONE OF HER MAJESTY'S PRINCIPAL SECRETARIES OF STATE.

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ROYAL COMMISSION.

VICTORIA, R.

Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith; to Our most dearly beloved Consort, His Royal Highness Francis Albert Augustus Charles Emanuel Duke of Saxony, Prince of Saxe Coburg and Gotha, Knight of Our Most Noble Order of the Garter, and Field Marshal in Our Army; Our right trusty and right entirely-beloved Cousin and Councillor, Walter Francis Duke of Buccleuch and Queensberry, Knight of Our Most Noble Order of the Garter; Our right trusty and right well-beloved Cousin William Earl of Rosse, Knight of Our Most Illustrious Order of Saint Patrick; Our right trusty and right well-beloved Cousins and Councillors Granville George Earl Granville, and Francis Earl of Ellesmere; Our right trusty and well-beloved Councillor Edward Geoffrey Lord Stanley; Our right trusty and well-beloved Councillors John Russell (commonly called Lord John Russell), Sir Robert Peel, Baronet, Henry Labouchere, and William Ewart Gladstone; Our trusty and well-beloved Sir Archibald Galloway, Knight Commander of Our Most Honourable Order of the Bath, and Major-General in Our Army in the East Indies, Chairman of the Court of Directors of the East India Company, or the Chairman of the Court of Directors of the East India Company for the time being; Sir Richard Westmacott, Knight, Sir Charles Lyell, Knight, President of the Geological Society of London, or the President of the Geological Society of London for the time being; Thomas Baring, Esquire; Charles Barry, Esquire; Thomas Bazley, Esquire; Richard Cobden, Esquire; William Cubitt, Esquire, President of the Institution of Civil Engineers, or the President of the Institution of Civil Engineers for the time being; Charles Lock Eastlake, Esquire; Thomas Field Gibson, Esquire; John Gott, Esquire; Samuel Jones Loyd, Esquire; Philip Pusey, Esquire; and William Thompson, Esquire, greeting.

Whereas the Society for the Promotion of Arts, Manufactures, and Commerce, incorporated by Our Royal Charter, of which Our most dearly beloved Consort, the Prince Albert, is President, have of late years instituted Annual Exhibitions of the Works of British Art and Industry, and have proposed to establish an Enlarged Exhibition of the Works of Industry of all Nations, to be holden in London in the year one thousand eight hundred and fifty-one, at which prizes and medals, to the value of at least twenty thousand pounds sterling, shall be awarded to the exhibitors of the most meritorious works then brought forward; and have invested in the names of Our right trusty and entirely-beloved Cousin Spencer Joshua Alwyne Marquess of Northampton, Our right trusty and right well beloved Cousin and

Councillor George William Frederick Earl of Clarendon, Knight of Our Most Noble Order of the Garter, Our trusty and well-beloved Sir John Peter Boileau, Baronet, and James Courthope Peache, Esquire, the sum of twenty thousand pounds, to be awarded in prizes and medals as aforesaid; and have appointed Our trusty and well-beloved Arthur Kett Barclay, Esquire, William Cotton, Esquire, Sir John William Lubbock, Baronet, Samuel Morton Peto, Esquire, and Baron Lionel de Rothschild, to be the Treasurers for all receipts arising from donations, subscriptions, or any other source, on behalf of or towards the said Exhibition; Our trusty and well-beloved Peter le Neve Foster, Joseph Payne, and Thomas Winkworth, Esquires, to be the Treasurers for payment of all executive expenses; and Our trusty and well-beloved Henry Cole, Charles Wentworth Dilke the younger, George Drew, Francis Fuller, and Robert Stephenson, Esquires, with Our trusty and well-beloved Matthew Digby Wyatt, Esquire, as their Secretary, to be an Executive Committee for carrying the said Exhibition into effect, under the directions of Our most dearly beloved Consort;

And whereas the said Society for the Promotion of Arts, Manufactures, and Commerce, have represented unto Us, that, in carrying out the objects proposed by the said Exhibition, many questions may arise regarding the introduction of productions into Our Kingdom from Our Colonies and from Foreign Countries; also regarding the site for the said Exhibition, and the best mode of conducting the said Exhibition; likewise regarding the determination of the nature of the prizes, and the means of securing the most impartial distribution of them; and have also besought Us that We would be graciously pleased to give Our Sanction to this Undertaking, in order that it may have the confidence, not only of all classes of Our subjects, but of the subjects of Foreign Countries:

Now know ye, that We, considering the premises, and earnestly desiring to promote the proposed Exhibition, which is calculated to be of great benefit to Arts, Agriculture, Manufactures, and Commerce, and reposing great trust and confidence in your fidelity, discretion, and integrity, have authorized and appointed, and by these presents do authorize and appoint, you Our most dearly beloved Consort Francis ALBERT Augustus Charles Emanuel Duke of Saxony, Prince of Saxe-Coburg and Gotha, you Walter Francis Duke of Buccleuch and Queensberry, William Earl of Rosse, Granville George Earl Granville, Francis Earl of Ellesmere, Edward Geoffrey Lord Stanley, John Russell (commonly called Lord John Russell), Sir Robert Peel, Henry Labouchere, William Ewart Gladstone, Sir Archibald Galloway, or the Chairman of the Court of Directors of the East India Company for the time being, Sir Richard Westmacott, Sir Charles Lyell, or the President of the Geological Society for the time being, Thomas Baring, Charles Barry, Thomas Bazley, Richard Cobden, William Cubitt, or the President of the Institution of Civil Engineers for the time being, Charles Lock Eastlake, Thomas Field Gibson, John Gott, Samuel Jones Loyd, Philip Pusey, and William Thompson, to make full and diligent inquiry into the best mode by which the productions of Our Colonies and of Foreign Countries may be introduced into Our Kingdom; as respects the most suitable site for the said

Exhibition; the general conduct of the said Exhibition; and also into the best mode of determining the nature of the prizes, and of securing the most impartial distribution of them.

And to the end that Our Royal Will and Pleasure in the said inquiry may be duly prosecuted, and with expedition, We further, by these presents, will and command, and do hereby give full power and authority to you, or any three or more of you, to nominate and appoint such several persons of ability as you may think fit to be Local Commissioners, in such parts of Our Kingdom and in Foreign Parts as you may think fit, to aid you in the premises; which said Local Commissioners, or any of them, shall and may be removed by you, or any three or more of you, from time to time, at your will and pleasure, full power and authority being hereby given to you, or any three or more of you, to appoint others in their places respectively:

And, furthermore, We do, by these presents, give and grant to you, or any three or more of you, full power and authority to call before you, or any three or more of you, all such persons as you shall judge necessary by whom you may be the better informed of the truth of the premises, and to inquire of the premises, and every part thereof, by all lawful ways and means whatsoever.

And Our further Will and Pleasure is that, for the purpose of aiding you in the execution of these premises, We hereby appoint Our trusty and well-beloved John Scott Russell and Stafford Henry Northcote, Esquires, to be joint Secretaries to this Our Commission.

And for carrying into effect what you shall direct to be done in respect of the said Exhibition, We hereby appoint the said Henry Cole, Charles Wentworth Dilke the younger, George Drew, Francis Fuller, and Robert Stephenson, to be the Executive Committee in the premises, and the said Matthew Digby Wyatt to be Secretary of the said Executive Committee.

And Our further Will and Pleasure is that you, or any three or more of you, when and so often as need or occasion shall require, so long as this Our Commission shall continue in force, do report to Us, in writing, under your hands and seals respectively, all and every of the several proceedings of yourselves had by virtue of these presents, together with such other matters, if any, as may be deserving of Our Royal Consideration touching or concerning the premises.

And, lastly, We do by these presents ordain that this Our Commission shall continue in full force and virtue, and that you, Our said Commissioners, or any three or more of you, shall and may, from time to time, and at any place or places, proceed in the execution thereof, and of every matter and thing therein contained, although the same be not continued from time to time by adjournment.

Given at Our Court at Saint James's, the Third day of January, 1850, in
the Thirteenth year of Our Reign.

By Her Majesty's Command,

G. GREY.

CHARTER OF INCORPORATION.

VICTORIA, by the Grace of God of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, to all to whom these presents shall come, greeting: Whereas We were graciously pleased to issue Our Commission under Our Royal Sign Manual, bearing date the third day of January, in the year of our Lord One thousand eight hundred and fifty, for the promotion of the Exhibition of the Works of Industry of all Nations to be holden in the year One thousand eight hundred and fifty-one, and thereby for that purpose to appoint Our most dearly beloved Consort, His Royal Highness Francis ALBERT Augustus Emanuel Duke of Saxony, Prince of Saxe-Coburg and Gotha, Knight of Our most noble Order of the Garter and Field Marshal in Our Army; Our right trusty and right entirely-beloved Cousin and Councillor Walter Francis Duke of Buccleuch and Queensberry, Knight of Our most noble Order of the Garter; Our right trusty and right well-beloved Cousin William Earl of Rosse, Knight of Our most illustrious Order of St. Patrick; Our right trusty and right well-beloved Cousins and Councillors Granville George Earl Granville, and Francis Earl of Ellesmere; Our right trusty and well-beloved Councillor Edward Geoffrey Lord Stanley; Our right trusty and well-beloved Councillors John Russell (commonly called Lord John Russell), Sir Robert Peel, Baronet (since deceased), Henry Labouchere and William Ewart Gladstone; Our trusty and well-beloved Sir Archibald Galloway, Knight Commander of Our Most Honourable Order of the Bath and Major-General in Our Army in the East Indies, Chairman of the Court of Directors of the East India Company (since deceased), or the Chairman of the Court of Directors of the East India Company for the time being; Sir Richard Westmacott, Knight; Sir Charles Lyell, Knight, President of the Geological Society of London, or the President of the Geological Society of London for the time being; Thomas Baring, Esquire; Charles Barry, Esquire; Thomas Bazley, Esquire; Richard Cobden, Esquire; William Cubitt, Esquire, President of the Institution of Civil Engineers, or the President of the Institution of Civil Engineers for the time being; Charles Lock Eastlake, Esquire; Thomas Field Gibson, Esquire; John Gott, Esquire; Samuel Jones Loyd, Esquire (now Lord Overstone); Philip Pusey, Esquire; and William Thompson, Esquire, to make full and diligent inquiry into the best mode by which the Productions of Our Colonies and Foreign Countries might be introduced into Our Kingdom, as respects the most suitable Site for the said Exhibition, the general conduct of the said Exhibition, and also into the best mode of determining the nature of the Prizes, and of securing the most impartial distribution of them; And did thereby give to the said Commissioners, or any three or more of them, certain powers and authorities therein contained: And whereas it has been represented to Us, by Our Commissioners now acting under Our said Commission, that they have proceeded in the inquiries and in the execution of the other matters entrusted to them by Our said Commission, and that it was expedient not only to continue to them the said powers and authorities, but also that they should have full powers and authorities to carry out and conduct the said Exhibition, and for that purpose to nominate and appoint such number of persons as they may think fit, with powers and authorities adequate for the effectually carrying out, conducting, and completing the said Exhibition, and all matters and things relating to and concerning the same, and they have therefore prayed that We would be graciously pleased to grant them Our Royal Charter of Incorporation for the purposes aforesaid, to which We have been pleased to condescend, adding nevertheless to the said Commissioners now acting under Our said Commission, Robert Stephenson, Esquire: Now know ye, that We, being earnestly desirous to promote the said Exhibition, do by these presents, for Us, Our heirs and successors, give, grant, and ordain that Our said dearly beloved Consort, and the said Walter Francis Duke of Buccleuch and Queensberry, William Earl of Rosse, Granville George Earl Granville, Francis Earl of Ellesmere, Edward Geoffrey Lord Stanley, Samuel Jones Lord Overstone, John Russell (commonly called Lord John Russell), Henry Labouchere, William Ewart Gladstone, and John Shepherd, Esquire, Chairman of the Court of Directors of the East India Company, whilst he shall be such Chairman, and when he shall cease to be such Chairman, then the Chairman of the Court of Directors of the East India Company for the time being, and the said Sir Richard Westmacott, Sir Charles Lyell, the President of the Geological Society, whilst he shall be President of the said Society, and when he shall cease to be such President, then the President of the said Society for the time being, Thomas Baring, Charles Barry, Thomas Bazley, Richard Cobden, William Cubitt, or the President of the Institution of Civil Engineers for the time being, Charles Lock Eastlake, Thomas Field Gibson, John Gott, Philip Pusey, William Thompson, and Robert Stephenson, Esquires, and the survivors and survivor of them, and such other persons, if any, as shall be elected by them as after mentioned, shall be one body politic and corporate, by the name of "The Commissioners for the Exhibition of 1851," and by that name shall and may sue and be sued, implead and be impleaded, and shall have perpetual succession, subject as after provided, and a common seal, with full power to alter, vary, break, or renew the same at their discretion. And We do declare that the said Corporation shall be established for the purposes after mentioned, and that the said inquiries and matters directed to be made and done by Our said Commission, shall be made and done by the said Commissioners hereby incorporated, and that no further proceedings shall be had under Our said Commission, and that the capital or joint stock of the said Commissioners hereby incorporated shall be such sums of money as have been already subscribed towards the establishment of the said Exhibition and paid, and which are now in the custody or control of the said Commissioners hereby incorporated, or which shall come to their hands, or which shall or may hereafter be subscribed and paid for, or towards the purpose aforesaid, or which shall be received in respect of the deposit of any goods to be exhibited, or the entrance and admission of persons to view the said Exhibition or otherwise relating thereto, and which shall come to the hands of the said Commissioners hereby incorporated. And We do hereby authorize and appoint the said Commissioners hereby incorporated, to proceed in making full and diligent inquiry as to the best mode by which the productions of Our Colonies and of Foreign Countries may be introduced into Our Kingdom, and also as respects the most suitable site for the said Exhibition, and also as to the general conduct of the same, and also into the best mode of determining the nature of the Prizes, and of securing the most impartial distribution of them, and We do hereby also give full power and authority to the said Commissioners hereby incorporated, to nominate and appoint such several persons of ability as they may think fit to be Local Commissioners in such parts of Our Kingdom and in Foreign parts as they may think fit, to aid them, the said Commissioners, hereby incorporated in the premises, which said Local Commissioners or any of them shall and may be removed by the said Commissioners hereby incorporated, from time to time, at their will and pleasure, and others appointed in their places or not as may be thought fit. And We do hereby further give and grant to the said Commissioners hereby incorporated, full power and authority to call before them all such persons as they shall judge necessary, by whom they may be the better informed of the truth of the matters which may be enquired into by the said Commissioners, and also to inquire into all matters relating to the said Exhibition, by all other lawful ways and means whatsoever. And We do hereby direct and authorize the said Commissioners hereby incorporated, to carry out and conduct the said Exhibition in the year One thousand eight hundred and fifty-one, and to contract for, erect, and remove any building or buildings relating to the same, and to distribute Prizes to Exhibitors in all respects as they may think fit and to do all matters and things connected with the said distribution of the Prizes aforesaid, as they shall think fit, and to receive and pay all moneys to be received as aforesaid or otherwise, and to pay and dispose thereof as they shall direct, and, generally, to do all matters and things that may be necessary or appear to them to be expedient for the conduct of the said Exhibition, distribution of Prizes, and all matters connected with the said Exhibition and distribution of Prizes. And We do hereby ordain that it shall be lawful for the said Commissioners hereby incorporated, and they shall have full power and authority from time to time to depute or choose any persons either being Members of the said Corporation or not, or some of whom may be Members and some not, and to give to them all, or any, and such of the powers and authorities hereby given to the Commissioners hereby incorporated as they shall think fit to do, all or any of the matters and things hereby authorized to be done by the said Commissioners hereby incorporated, and which may be necessary for conducting or in any manner relate to or concern the said Exhibition: And We do hereby order that it shall be lawful for the said Commissioners hereby incorporated from time to time to appoint one or more Secretaries, and such other officers as they may think fit, and to remove them, and all other persons appointed by them, as they may determine, and to appoint others. And also We do hereby ordain that Our most dearly beloved Consort shall be the President of the said Corporation; and on his ceasing to be President, that the said Commissioners hereby incorporated may elect such President as they may think fit; and also that the said Commissioners hereby incorporated may elect such other persons to be Members of the said Corporation as they may think fit; and that they, the said Commissioners hereby incorporated, shall and may have full power and authority to receive, charge, and take any moneys for the deposit of any goods to be exhibited, or the entrance to the Exhibition, or for the rent of any part of the Buildings to be erected, or otherwise relating to the premises, and to dispose of all moneys which, by any of the means aforesaid, shall come to their hands, in all respects as they shall think fit for and towards the purposes of the said Exhibition, or otherwise, in the execution of the powers hereby given to them; and that they shall have full power to give effectual discharges to any persons respectively paying any moneys to them, which have been already subscribed, or shall be hereafter subscribed, for the purpose of, or relating to, the said Exhibition; and to settle and adjust any accounts relating thereto, or to any part thereof, which may have been, or shall be, expended by any person or persons whomsoever. And We do hereby order and direct that the said Commissioners hereby incorporated shall meet when and at such place or places as from time to time they shall direct or determine; and that all and every the powers hereby given to the said Commissioners hereby incorporated may be done at any meeting of any three or more of them; and that the decision of the majority of the said Commissioners so incorporated attending at any such meeting shall be binding, and determine any question proposed at any meeting; and that when the votes shall be equal, the President for the time being, if present, shall, in addition to his vote as a Member, have the casting vote; and that the said Commissioners so incorporated shall and may, from time to time, make such rules, orders, regulations, and bye-laws for the management of the business of the said Corporation as they may think fit, so as the same be not contrary to the laws of this Our Realm; and such rules, orders, regulations, and bye-laws shall, when made, and till the same shall be repealed or altered, be as effectual as if they were contained in this Our Royal Charter: Provided always, that when and as soon as all the matters and things entrusted to be done by this Our Royal Charter by the said Commissioners hereby incorporated shall be fully performed, or become incapable of being executed, and when the same shall have been certified in writing to one of Our Principal Secretaries of State by any three or more of the said Commissioners, then these presents and every matter and thing shall be absolutely void.

In witness whereof We have caused these Our letters to be made patent. Witness Ourself at Our Palace at Westminster this Fifteenth day of August, in the Fourteenth year of Our reign.

By Writ of Privy Seal,

EDMUNDS.

FIRST REPORT

OF THE

COMMISSIONERS FOR THE EXHIBITION OF 1851.

RIGHT HON. SPENCER HORATIO WALPOLE, &c. &c.,
One of Her Majesty's Principal Secretaries of State.

SIR,

HER Majesty having been most graciously pleased to incorporate us by Her Royal Charter, bearing date the 15th day of August 1850 (see p. x.), for the purpose of carrying out, conducting, and completing the exhibition of the Works of Industry of all Nations, then intended to be holden in London, and which has since actually taken place,—and the time having now arrived for rendering to Her Most Gracious Majesty an account of our proceedings under the authority thereby committed to us, and of the success which has attended the Exhibition,—we have the honour to transmit to you this Report, in order that it may be laid before Her Majesty in the proper manner.

Our original appointment by Her Majesty's Royal Commission of the 3rd January 1850 did not invest us with a Corporate character, or confer upon us the powers necessary for carrying on and conducting the Exhibition. At the time when that Commission was issued, a proposal had been made by the Society for the Promotion of Arts, Manufactures and Commerce, under the Presidency of His Royal Highness Prince Albert, for establishing an Exhibition of the Works of Industry of all Nations; and the Society had, as a preliminary measure, made arrangements for obtaining the funds required for commencing the undertaking, and had actually invested in the names of Trustees a sum of £20,000, to be expended in Prizes and Medals, which should be awarded to the Exhibitors of the most meritorious works. The object, then, for which the Royal Commissioners were appointed by the Royal Warrant of the 3rd January was that of inquiring into the expediency and merits of the scheme so proposed by the Society of Arts, and of rendering the Society assistance, if it should appear desirable to do so, in carrying that scheme into execution. The functions of the Commission would have been those of arranging the mode in which the productions of foreign countries and of the colonies should be introduced into the kingdom, of deciding on the best and most suitable site for the Exhibition, its general conduct, and the mode of awarding and distributing the Prizes. On all these points the Executive Committee, previously appointed by the Society of Arts for the purpose of carrying on the Exhibition, would have acted under the direction of the Royal Commissioners; but the responsibility of entering into the pecuniary liabilities attending the undertaking, and of providing the funds necessary for its completion, would not have rested upon the Commissioners, but upon the Society of Arts.

At the first meeting, however, of the Royal Commission an important resolution was taken, which ultimately had the effect of rendering necessary a complete change in their position.

The Society of Arts, not having at their own disposal any funds which they could apply to the purposes of the Exhibition, had found it necessary, at the very outset of their proceedings, to make arrangements for procuring money on the security of the profits which they anticipated might arise from the undertaking; and having met with a firm (Messrs. James and George Munday) willing to advance the sums likely to be required, had entered into an agreement by which that firm bound themselves to advance whatever amount might be necessary, in consideration of receiving a proportion of the profits of the Exhibition, which proportion was in the first instance fixed, but afterwards, at the request of the Society of Arts, was left to be decided at the close of the Exhibition by arbitrators chosen on either side.

Into this agreement a clause had been introduced, giving the Society of Arts the power to cancel it, if requested to do so by the Lords of Her Majesty's Treasury within a specified period, provision being at the same time made for the repayment to the Messrs. Munday of any sums that might have been advanced by them, together with a fair compensation for the outlay and risk which they might have incurred.

At the first meeting of the Royal Commission the subject of the contract with Messrs. Munday was taken into consideration; and it appeared to the Commissioners that it was desirable that steps should be taken for cancelling it, and throwing the whole burden of the Exhibition upon voluntary contributions. In arriving at this conclusion the Commissioners did not intend to reflect any discredit upon the contract. On the contrary, they were fully convinced that it had been entered into with the best intentions possible by the Society of Arts, and with a most libera spirit by the Messrs. Munday, and that its conditions were strictly reasonable, and, indeed, favourable to the public. They judged, however, that the maintenance ot any contract, giving to a great national undertaking the appearance of a private speculation, would not be consonant with public feeling, and would endanger the success of the Exhibition both at home and abroad. Upon these grounds they addressed a request to the Lords of the Treasury that their Lordships would exercise the power reserved to them in the contract between the Society of Arts and the Messrs. Munday, of requesting the former body to give immediate notice to the Messrs. Munday of their intention to determine the contract. In order to make this request valid, it was necessary that the Lords of the Treasury should intimate their willingness to take upon themselves the responsibility of repaying to the Messrs. Munday the sums already advanced by them, together with such amount of compensation as arbitrators might award to them; but as it had been understood from the first issue of the Commission that no part of the funds for carrying on the Exhibition was to come out of Her Majesty's Exchequer, the Lords of the Treasury required that, before making such an intimation to the Society of Arts, they should receive from the Royal Commission an assurance that the necessary sums should be forthcoming when wanted, which assurance the Commissioners accordingly gave.

It may here be well to state that the amounts advanced by the Messrs. Munday, namely £20,000 invested for the prize fund, and £2,500 advanced for general purposes, were repaid, with the interest due upon the same, on the 22nd Nov. 1850; and that the question of compensation for the loss of time, personal services, and risk of the contractors, having been referred by mutual consent to Robert Stephenson, Esq., M.P., that gentleman, after a full inquiry into the circumstances, and after hearing counsel on the case, ultimately, on the 21st July 1851, fixed the amount payable to the Messrs. Munday at £5,120 and the costs, which sum has accordingly been paid to those gentlemen.

The Commissioners having now, by the determination of the contract, taken upon themselves the responsibility of finding the sums necessary for carrying on the Exhibition, proceeded forthwith to invite the public to contribute to this great national object. A subscription list was immediately opened, and in announcing to the public the step they had taken, the Commissioners stated that they would hold themselves exclusively responsible for the application of the funds which might be subscribed, and would proceed without delay to establish regulations for ensuring an effectual control over the expenditure, and a satisfactory audit of the accounts.

The subscriptions promised to the undertaking were made public from time to time as they were announced. The total amount reported was £79,224 13*s*. 4*d*., of which sum £67,896 12*s*. 9*d*. had been actually paid to the credit of the Commission on the 29th February, 1852. A portion of the subscriptions received in some of the provincial districts was retained to defray the expenses of collection and local management.

At the commencement of the Commissioners' proceedings, while they were incurring no expenses beyond those of the remuneration of their officers, and the necessary outlay on printing, advertising, and other comparatively small items, the subscriptions received from time to time were amply sufficient for their wants; and they did not experience any inconvenience from the want of a more definite legal position than that of a mere Commission of Inquiry. But when, in the month of July 1850, the plan for a building estimated to cost £79,800 had been approved, and it became necessary that a contract should be made for its erection, questions naturally arose as to the power of the Commission to enter into and to enforce such a contract,—as to the person or persons by whom such contract should be signed, and the individual responsibility which, by so signing it, they would incur,—and as to the mode in which the money that would be required beyond the amount of the subscriptions received was to be provided.

These considerations led to the Commissioners' soliciting and obtaining from Her Majesty a Royal Charter of Incorporation, dated August 15, 1850 (see page x.), under which they at present exist as a corporate body. Having thus obtained a legal status, they found themselves in a position to enter into the necessary contract for the erection of the Building, and were also enabled to procure from the Bank of England an advance of such sums as they required on the personal guarantee of certain individual members of the Commission, and other well-wishers to the undertaking. The sums so advanced from time to time by the Bank of England, amounting in the whole to £32,500, were repaid, with interest, on the 22nd of May last, out of the receipts at the doors, after the Exhibition had been open for three weeks.

In the Charter thus granted, however, no provision was inserted to meet the case of a surplus remaining after the expenses should have been defrayed, and accordingly when, at the close of the Exhibition, it was ascertained that the money in the hands of the Commissioners exceeded their liabilities by a very considerable amount, they found themselves under the necessity of bringing the circumstances of the case under the notice of Her Majesty, and of representing to Her that they had not, as then constituted, authority to decide upon the disposal of their surplus funds. In consequence of this representation, Her Majesty has been graciously pleased, by a Supplemental Charter bearing date December 2nd, 1851, to authorize the Commissioners to prepare a scheme for the application of the surplus, in accordance with the expectations which were held out to the subscribers at the time their aid was solicited, and to lay the same before Her Majesty. The Commissioners have therefore proceeded to the preparation of such a scheme, by the appointment of a Committee of their own body, which is now engaged in making the necessary inquiries, and they hope shortly to be in a position to submit a plan for Her Majesty's approbation.

Having thus briefly traced the history of the several changes which have taken place in their position from the time of their first appointment as a Commission of Inquiry, the Commissioners will now proceed to state generally the nature of the arrangements they adopted for the transaction of their business; they will then give a summary of their proceedings, in fixing the extent of the Exhibition, providing a Building, and arranging and opening it to the public,—adverting also to some of the most important of the questions which they had to decide in the course of the undertaking; and will afterwards endeavour to lay before Her Majesty, in a concise form, such accounts of the number and character of the articles exhibited, the prizes distributed, the number of visitors to the Exhibition, and other particulars, as may give a fair view of the results of the undertaking.

ARRANGEMENTS FOR THE TRANSACTION OF BUSINESS.

The Commissioners.

The general business of the Commission has been transacted at meetings (exceeding fifty in number) held at first in the Palace of Westminster, and afterwards in the Exhibition Building in Hyde Park, of which Meetings full Minutes have been preserved.

Those matters of detail which required more special investigation than they could receive from the whole body of Commissioners, were entrusted to Committees not always exclusively composed of Members of the Commission itself, but usually comprising, together with one or more Commissioners, several men of eminence in the particular pursuits most nearly connected with the subject of inquiry. Thus in order to decide upon the arrangements for the Building, a Committee was formed consisting of five Members of the Commission, and three other gentlemen of acknowledged eminence as engineers or architects. The Finance Committee comprised not only several Members of the Commission, but also a gentleman whose long connexion with the Treasury had rendered him familiar with the practice of the Government in financial matters, and another gentleman,—one of the Treasurers of the Commission,—whose extensive experience of contracts for great undertakings rendered him a most valuable and efficient adviser upon many points which came before the Committee. Again, the important task of preparing classified lists of the articles which should be admitted to the Exhibition, was confided to several Committees, each consisting of one or more Members of the Commission, associated with men of eminence in science, in art, or in particular branches of manufacture, according to the departments of the Exhibition of which they severally took cognisance. A complete list of all the Committees appointed by the Commission, with the objects for which they were appointed, and the length of time for which they sat, will be found in Appendix No. I. to this Report.

The decisions of the Commissioners on points relating to the Exhibition, published by them from time to time, are given in Appendix No. II., accompanied by remarks where necessary.

The Finance Committee.

In pursuance of an announcement to the public which has been already referred to, a Committee of Finance (*a*) was appointed, and an officer selected by the Lords of the Treasury from the Commissariat service (Assistant Commissary-General Carpenter) was directed to prepare, with the assistance of the Executive Committee, monthly estimates of the sums required for the purposes of the undertaking, and to submit the same to the Finance Committee, by which they were examined and laid before the Commission, when authority was given to the Treasurers of the Commission to pay the proper amount from the general balance at the Bank of England to a separate account, on which the Chairman of the Executive Committee and the Financial Officer were jointly empowered to draw. The Finance Committee has continued to meet regularly at short intervals, and all questions relating to the expenditure of the Commission have been submitted to it as they arose.

(*a*) *Earl Granville (Chairman), *Lord Overstone, *Mr. Labouchere, *Mr. Gladstone, *Sir W. Cubitt, *Mr. Cobden, *Mr. T. Baring, *Mr. Gibson, Sir A. Spearman, Bart, and Mr. Peto.
Those marked * are Members of the Commission.

The Executive Committee.

Before the issue of the Royal Commission, an Executive Committee had been appointed by the Council of the Society of Arts to carry into effect the contract which has already been alluded to. This Committee had been afterwards confirmed in Her Majesty's Commission of the 3rd January, 1850. It then consisted of the following Members: Mr. Robert Stephenson, Mr. Henry Cole, Mr. C. Wentworth Dilke, Mr. F. Fuller, Mr. G. Drew, Mr. M. Digby Wyatt, (Secretary). Of these, Mr. Drew had been nominated by Messrs. Munday to represent their interests, according to a provision in the contract.

Immediately on the Commissioners availing themselves of the power to annul the contract, and thereby assuming a different relation to the management of the Exhibition, the then Executive Committee considered it becoming to leave the Commissioners wholly unfettered in the choice of their Executive Officers, and accordingly tendered their resignations. Under these circumstances Mr. Robert Stephenson retired, and was nominated a Commissioner by a supplementary warrant from Her Majesty; and Lieut.-Colonel, now Colonel Sir William Reid, R.E. was appointed by Her Majesty's warrant dated February 12, 1850, to succeed him in the Executive Committee. The other Members of the Committee were requested to continue their duties, but Mr. Fuller and Mr. Drew stated that they were unable to devote the whole of their time to the service of the Commission, and the principal part of the duties fell therefore upon Sir William Reid, Mr. Cole, and Mr. Dilke. It then became their duty practically to carry into effect all the decisions of Her Majesty's Commissioners, and to exercise that continued watchfulness in every department which was requisite in so vast an undertaking, and which could only be secured by the agency of persons constantly engaged in its management, and possessing authority to dispose of such questions of detail as could not conveniently be delayed for the consideration of the Commissioners. The Executive Committee have been engaged in this manner without intermission until the present time. Sir W. Reid more particularly undertook the duties of communicating with the public departments, Mr. H. Cole the questions of space and arrangement, and Mr. C. Wentworth Dilke the charge of the correspondence and general superintendence. The services of Mr. Fuller and Mr. Drew were principally employed in organizing the collection of subscriptions in the earlier period of the labours of the Commission.

Some idea may be formed of the extent of the duties devolving upon the acting Executive Committee, from the table of correspondence subjoined to this Report (Appendix III.); but this only represents a portion of their labours, which necessarily included also much personal attention to subjects of the most miscellaneous character, arising at different periods of the preparations and conduct of the Exhibition.

Another Appendix (No. IV.) contains a Catalogue of printed documents among which will be found those used by the Executive Committee, and which illustrate many parts of the duties performed by them and by other Committees.

The Staff organized under their control for carrying on the actual business of the Commission is shown in Appendix V., which gives the number, names, and employment, of all persons engaged in the various departments during the preparatory arrangements, and also during the continuance of the Exhibition itself.

In many parts of these arrangements, both before and after the opening of the Exhibition, the Commissioners derived the most important benefit from the co-operation and assistance of the Corps of Royal Engineers and Royal Sappers and Miners, who had been placed at their disposal. An account of the duties performed by these corps will be found in Appendix No. VI.

Local Organization.

It has already been stated that as soon as the Commissioners had decided to take upon themselves the whole responsibility of the Exhibition, they proceeded to appeal to the public for support. In order to give effect to this appeal, it was necessary to establish from the first a good system of local organization throughout the country, not only for the purpose of collecting subscriptions, but with the ultimate view of collecting and diffusing information respecting the Exhibition, ascertaining the amount of articles of all sorts likely to be exhibited, and the peculiar arrangements necessary in the case of any of them, and generally of conducting the undertaking as far as possible in accordance with the wishes of the public. Before the issue of the Royal Commission, the Society of Arts had already sent deputations to visit a great number of the principal towns of the kingdom, and by the exertions of these deputations no less than 65 Local Committees had actually been formed, and others were in course of formation when the Royal Commissioners commenced their sittings. In order to complete the organization thus judiciously commenced, the Royal Commissioners at their first meeting adopted the following resolutions:—

"That the Executive Committee be directed forthwith to issue a circular to the mayors of all towns within the United Kingdom having a municipal constitution, announcing to them the issue of the Royal Commission, and inquiring whether a Local Committee has been appointed within the town; and requesting that if no Local Committee has been formed, the mayor will communicate with the principal inhabitants for the purpose of ascertaining whether, in their opinion, the circumstances of the town render it advisable to appoint a Local Committee.

"In the cases wherein such Local Committees do exist, or in which they may hereafter be appointed, the mayor to be requested to place himself in communication with the Local Committee, and to report whether it is wished that Local Commissioners should be appointed for the town, on what grounds their appointment is desired, what number of Commissioners is proposed, and what persons are recommended.

"In the case of municipal towns having Chambers of Commerce, a similar circular to be addressed also to the President of the Chamber, and a request made that he will communicate with the mayor upon the subject.

"In towns or districts not having municipal constitutions, but in which Local Committees have been or may be formed, the circular to be sent to such Local Committees.

"As there may be districts not included within the above designations, for which it may be desirable that Local Committees should be appointed, and in respect of which further information is required by the Commission, the Executive Committee are requested to direct their immediate attention to this subject.

"The Commission will enter into communication with the Royal Agricultural Societies in the three parts of the United Kingdom, for the purpose of inviting their co-operation, and their assistance in determining whether it be advisable that so far as agriculture is concerned, Local Committees should be appointed, and on what principle they should be formed.

"But there are districts and occupations connected, for instance, with mining interests, and with great branches of manufacture not carried on in municipal towns, which might be advantageously included within the objects of the Commission; and the Executive Committee is to be requested to consider in what mode their co-operation can be secured, and through what channel the requisite preliminary communication can best be made."

A Committee having shortly afterwards been appointed by the Commissioners for organizing the collection of subscriptions, several gentlemen were selected by this Committee to visit the more important provincial towns, and partly through the exertions of these gentlemen, partly by means of the correspondence of the Executive Committee, and partly by the aid of the public newspapers, the necessary information as to the nature of the Exhibition was widely diffused, and Local Committees were ultimately appointed in 297 towns and districts, a list of which, with the names of their respective Chairmen, Secretaries, and Treasurers, is given in Appendix No. XL., to which reference will again be made. From the several scientific and other societies also, to which appeals were addressed, the Commissioners received ready promises of support, and they must here more particularly record their obligations to the Royal Agricultural Society, which at a very early period of the Commissioners' proceedings adopted a resolution to abandon its usual show of agricultural implements for the year 1851, so as to enable the Commissioners fully to develope one of the most interesting portions of the general Exhibition. The gentlemen who had for several years been in the habit of superintending these annual shows on the part of the Royal Agricultural Society were also kind enough to give their valuable services in this department to the Commissioners, and were subsequently appointed to act as the English portion of the Jury for awarding the prizes in this department.

Power having been given to the Commissioners by the original warrant for their appointment to nominate Local Commissioners in any cases where it might appear to be advisable, they consulted the Local Committees upon the subject at an early period, and wherever it appeared to them desirable, with a view to the interests of the district, that Local Commissioners should be nominated to represent it, the Commissioners appointed them accordingly. The Local Commissioners subsequently afforded great assistance to the Commissioners by conferring with them on topics of local importance, as well as by representing the feelings of different parts of the country on some questions of a general character. A list of the gentlemen who acted in this capacity will be found in Appendix No. I.

It being in a short time found to be very desirable that a system of personal communication should be established between the Royal Commissioners and the Local Committees, with a view to insuring general uniformity of action throughout the kingdom, and to abridging the delays involved in a bulky correspondence, two

Special Commissioners (Dr. Lyon Playfair and Lieut. Colonel Lloyd) were appointed to communicate with the Local Committees, and were employed in visiting many towns in the course of their preparations for the collection and transmission of articles to the Exhibition. The instructions given to these gentlemen were as follow :—

> "1. To visit the several districts and enter into personal communication with the Local Committees, for the purpose of assisting them in arranging a system of general organization for the effective selection and rejection of articles proposed to be exhibited. 2. To afford to the Local Committees information on any points already determined by Her Majesty's Commissioners, or on those relative to which any uncertainty may exist; or which, from local circumstances, it may be considered advisable to modify in any degree. 3. To collect the general opinions of persons of local experience with respect to the best ordinary products of each district, and the probable bulk or extent to be transmitted from each locality."

The Commissioners cannot speak too strongly of the valuable assistance which in every part of their duties they received from the Local Committees. To give an idea of the arduous duties which devolved upon them, a summary of the proceedings of some of the Committees is given in Appendix No. VII.

Communications with Foreign Countries and Colonies.

After having thus provided for a good local organization in the United Kingdom, the Commissioners directed their attention to the subject of foreign and colonial communications, and, at their first meeting, ordered letters to be addressed to the Secretaries of State for Foreign and Colonial Affairs, requesting them to notify the issue of the Royal Commission to foreign powers, and to the colonies, and to request that the Commissioners might be put in communication with such persons or bodies in each country as might best represent those who were likely to be interested in the Exhibition. A similar communication was addressed to the Directors of the Honourable East India Company. These communications were promptly responded to. Commissions were appointed, or Committees formed, in 30 foreign countries and 11 of the British colonies, the names of which will be found in Appendix No. VIII. The Commissioners also received the most energetic support from the East India Company, both at the commencement, and throughout the duration of their labours.

EXTENT OF THE EXHIBITION.

There not being any time to be lost in commencing the Building, it was impossible to make any extensive inquiries as to the amount of articles likely to be tendered for Exhibition, and it was therefore necessary to lay down some arbitrary rule upon the subject. The Commissioners accordingly decided upon fixing the area of the Building at about 800,000 square feet, or nearly twenty acres, a space between three and four times as large as that occupied by any previous exhibition abroad. The space thus fixed was increased during the execution of the project to rather more than 1,000,000 square feet.

THE BUILDING.

At their third Meeting, held on January 24th, 1850, the Commissioners appointed a Building Committee, consisting of the following noblemen and gentlemen:—

*The Duke of Buccleuch.
*The Earl of Ellesmere.
*Mr. (now Sir C.) Barry, R.A.
*Mr. (now Sir W.) Cubitt, Pres. Inst. C.E.
*Mr. Stephenson, M.P.
Mr. Brunel.
Mr. Cockerell, R.A.
Mr. Donaldson.

This Committee held its first meeting on February 5th, and its 38th on July 23rd, 1850.

The first subject which engaged its attention was the question of a proper site for the Building. Many were proposed, examined, and discussed, and finally, on the 21st of February, a Report was handed to the Commissioners recommending the present site in Hyde Park,—one which had been suggested at an early stage of the proceedings, and for the use of which it has been already announced that the permission of the Crown had been obtained. The site thus recommended contained about 20 acres; and the Report of the Building Committee advised that, of the entire area, about 16 acres should be covered with Building. The Report further urged, "that it was desirable to obtain suggestions by public competition as "to the general arrangements of the ground plan of the Building." The Commissioners having adopted this Report, an invitation (dated March 13th, 1850) was published, calling on architects and others to offer their "suggestions for the "general arrangement of the buildings and premises required for the Exhibition."

No less than 233 designs and specifications were forwarded at the appointed time, the 8th of April. Of these 38 were contributed by foreigners (France sending 27; Belgium, 2; Holland, 3; Hanover, 1; Naples, 1; Switzerland, 2; Prussia, 1; Hamburgh, 1): 128 by residents in London and its environs; 51 by residents in provincial towns of England; 6 by residents in Scotland; 3 by residents in Ireland; and 7 were anonymous. Twelve additional plans were received after the 8th of April. All these plans were publicly exhibited during a month from the 10th of June, at the Institution of Civil Engineers, Great George Street, Westminster. The Building Committee reported on the merits of them, selecting two lists of the competitors. They considered the one "entitled to favourable and honourable mention," and the other to "further higher honorary distinction." (The names are given in Appendix No. IX). They, however, accompanied their Report with the important announcement, that in their opinion there was "no "single plan so accordant with the peculiar objects in view, either in the principle "or detail of its arrangement, as to warrant them in recommending it for "adoption."

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* Members of the Commission.

From the careful examination and analysis of these plans, many valuable practical conclusions as to the mode of arranging the building were derived. Thus it became evident that any principle of arrangement which should render it necessary that the stalls should run longitudinally, would be defective on account either of the inconvenient length of the stalls if there were only few transverse divisions, or their great confusion if intersected by many such;—Plans on radiating systems would crowd the public in counter currents upon the foci, besides that they could scarcely be adapted to the form of the site;—Plans of an architectural character were generally too monumental, too much divided, and far too expensive—involving an excess of walling exactly proportioned to the amount of their subdivisions, and rendering proper supervision almost impossible;—Plans dividing the Building into four distinct Exhibitions were objectionable, as the effect of the whole would have been marred; a quadruple staff of Superintendents would have been necessary, and one part would have been crowded whilst another would have been empty, in consequence of the impossibility of actually determining beforehand the proportion of space which would be required for each Section; whilst the disproportionate areas of the space demanded for raw products, machinery, manufactures, and fine arts, could only have produced an irregular Building;—Plans showing the whole site covered over with parallel sheds with spaces between, would have involved great lengths of unnecessary enclosure, were likely to be monotonous, and were devoid of any charm of variety or grandeur. While from some designs the lesson was thus learned of what to avoid, from others much information was gained; since many indispensable requisites had been foreseen, and more or less ingeniously provided for in the plans submitted by the competitors.

It became, therefore, necessary for the Building Committee themselves to prepare a plan embodying all the requisites of the Building, which none of the others individually contained; and on the 9th of May they presented a Report to the Commissioners, explaining therein their views as to those requisites, which were ultimately embodied in a plan for the realization of which a complete set of working drawings, specifications, and quantities were prepared under the immediate superintendence of three gentlemen, nominated for that purpose by the Committee.* Invitations were issued by advertisement for tenders upon the basis of the plans so prepared, and, in addition, for such suggestions and modifications, accompanied with estimates of cost, as might possibly become the means of effecting a considerable reduction upon the general expense. In the actual instructions it was stipulated that tenders, in which changes were proposed, would be only entertained provided they were "accompanied by working drawings and specifications, and fully "priced bills of quantities." 19 tenders were received at the appointed time

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* Mr. M. D. Wyatt, Mr. Owen Jones, and Mr. C. H. Wild. The first of these gentlemen was originally Secretary to the Executive Committee; but being an architect by profession, his services were transferred, in the first instance, to the Building Committee, and afterwards to the Building Department, where he continued until his connexion with the Commission ceased.

(July 10th), of which 8 only were for the entire work. On these tenders the Building Committee reported upon July 15th.

For some time previous to this date, difficulties had been raised (principally on the part of the residents in the vicinity of the site fixed upon) of such a nature as to lead public opinion to desire such a Building as should have the character of a lighter and more temporary structure than that proposed by the Building Committee. The Commissioners do not think it necessary now to enter into the general objections raised to the occupation of a site in Hyde Park. The subject having attracted the attention of Parliament, a paper was presented to the House of Commons on the 1st July 1850, containing the copy of a letter addressed by the Commissioners to the Lords of the Treasury, with a memorandum as to the site of the Exhibition, in which the grounds on which the site in Hyde Park was selected were fully stated, and the arguments against its adoption were discussed. This paper, and the explanations given by individual Members of the Commission in both Houses of Parliament, served to remove many of the objections that had been urged. A feeling, however, still prevailed against the employment of durable materials, and particularly of brickwork, in the erection of the Building; and it was the existence of this feeling on the part of the public which induced Mr., now Sir Joseph Paxton, to turn his attention to the subject, and led him to submit a plan for a structure, chiefly of glass and iron, on principles similar to those which had been adopted and successfully tried by him at Chatsworth. Messrs. Fox, Henderson, and Co., tendered for the erection of the Building proposed by the Committee: and, strictly in accordance with the conditions of tender, they also submitted estimates for the construction of the Building suggested by Sir J. Paxton, fulfilling the necessary conditions, and adapted in form to the official ground plan. An engraving of Sir J. Paxton's original design was published in the "Illustrated London News," 6th July, 1850, which, when compared with the Building that has been actually erected, will show what changes were subsequently made.

The Commissioners having fully investigated the subject, finally adopted, on the 26th July, the tender of Messrs. Fox, Henderson, and Co. to construct Sir J. Paxton's Building, as then proposed, for the sum of £79,800. Considerable modifications, additions and improvements in the architectural details were, however, subsequently made, which necessarily increased the outlay on the Building. The Contract Deed was not actually signed till the 31st October following, but the commencement of the works had not been delayed for this preliminary, and the first column of the Building was fixed as early as the 26th September. On the 14th November the Commissioners, to meet the requirements of the Lords of the Treasury and of the Commissioners of Woods, &c., entered into a Deed of Covenant with Her Majesty, binding them to remove the Building, and to restore the site to the Crown before the 1st of June 1852.

On the acceptance of the tender, arrangements were immediately made to concentrate the responsibilities of the supervision of the works, and the Royal Commissioners requested one of their body, Sir William Cubitt, who had acted as

Chairman to the Building Committee, to undertake the arduous duty of general control. As officers acting under and responsible to him, the gentlemen who had been nominated by the Building Committee to assist them in the preparation of their drawings, &c., were reappointed, it being understood that the division of labour between them should be as follows:—Mr. Wild to make himself responsible for the engineering details, Mr. Owen Jones for the decoration, and Mr. Wyatt for the general building construction, fulfilment of contracts, extras, omissions, and the regulation of monthly accounts. In these departments each of those gentlemen acted during the erection of the Building; Mr. Earie being employed as Clerk of the Works, and Mr. Harwood as Surveyor.

Possession of the site was obtained on the 30th of July, and a hoarding was immediately erected, enclosing it. Great ingenuity was bestowed upon the adaptation of mechanical contrivances to diminish and expedite labour; but it would occupy too great space were the Commissioners to attempt an account of them.

Numerous experiments were made to verify the stability of the work, and the consequent safety of the public; every cast-iron girder on being brought on the ground was weighed and tested in a hydraulic press. The wrought iron trusses were carefully examined, and their general conditions of efficiency determined both by experiment and theory. Some of the most questionable points of the foundations were tested by loading them with extraordinary weights; the gallery floors were abundantly proved both by stationary and by moving loads, and a careful observance of the effect of storms, &c., upon every portion of the building fortified those entrusted with its execution and supervision in a conviction of its stability and sufficiency.

During many weeks upwards of 2,000 men were employed upon the ground, four steam engines assisting in the various operations (see Appendix XI.)

The general plan of the Building as executed is that of a parallelogram, 1,848 feet long and 408 feet wide, the greatest dimension being in the direction from East to West; it includes, in addition, a projection on the North side 48 feet wide and 936 feet long. The whole of this area is subdivided into 12 avenues of various widths, extending in the direction of the greatest length. The principal avenue, 72 feet wide, and 63 feet high, occupies the centre, and is flanked on either side by avenues alternately 24 feet and 48 feet wide, of which the first on either side of the centre are of equal height with the main avenue, *i. e.,* 63 feet: the next two on either side are 43 feet high, and the remainder are all 23 feet high. Near the centre of the entire length of the Building these longitudinal avenues are intersected at right angles by a transept 72 feet wide, the semicylindrical roof of which rises to a height of 108 feet, inclosing a row of large trees; two other groups of trees on the ground give rise to open courts which are enclosed within the Building. The total area roofed over is 772,784 square feet, equal to about 19 acres. The avenues into which it has been stated that the whole building is divided, are formed by rows of hollow cast-iron columns 8 inches in diameter and 24 feet apart longitudinally, which rise in 1, 2, and 3 tiers to support the roof at the different levels already given. In the lower tier these columns are 19 feet long and in the two upper 17 feet, between each of which are inserted short pieces, each 3 feet long, of such a form that they serve to support girders in horizontal tiers at three different levels; the bases of the columns are also separate pieces, and vary in length to suit the different levels of the site. No less than 3,300 columns were required altogether. The girders, part of which are of cast and part of wrought iron, are all of the same depth, 3 feet (with the exception of four, which are 6 feet deep, and which occur in the roof at the intersection of the Nave and Transept), thus producing continuous horizontal lines through every part of the Building. The girders are all similar in appearance, forming a kind of lattice-work, by which arrangement great strength is combined with an appearance of lightness suitable to the slender proportions of the columns. All the 24 feet girders are of cast iron, and of these there are 2,150; roof trusses of greater length, 372 in number, are constructed principally in wrought iron, the general lines being the same as in the cast iron girders.

The lower tier of girders in parts of the Building more than one story in height forms the support for the floor of the galleries, which are 24 feet wide, and extend the whole length of the Building in four parallel lines (two on either side of the centre avenue), interrupted only by the transept, round the ends of which they are continued. Numerous cross galleries connect the longitudinal lines, and the total additional area thus obtained is 217,100 square feet. The floor of the galleries consists of cross beams, undertrussed so as to distribute the whole weight that may be brought upon the floor pretty equally upon the eight points at which the ends of the beams rest upon the cast-iron girders; upon this construction are fixed the ordinary floor-joists and floor. The galleries are reached by 10 double staircases with flights 8 feet wide, so arranged as to communicate equally readily with either of the two lines of gallery between which they are placed. In those parts of the Building which are more than two stories in height there is a second horizontal tier of girders at a height of 20 feet above the gallery; these do not support another gallery, but serve to give stiffness to the columns between which they are fixed. The upper tier of girders and trusses in all cases supports the roof, which is the most novel and interesting portion of the whole structure. In its general form the roof is flat, but consists in detail of a series of ridges and furrows, the rise and fall of which is but small. The roof girders or trusses being 24 feet apart longitudinally are made to carry on their upper edge the main gutters in the transverse direction of the Building. The space between these is spanned by light wood beams or rafters ingeniously contrived, so as to support the glass roof, and at the same time to carry into the main gutters both the rain water falling on the surface of the roof, and the condensed vapour forming under it. The total length of the gutters used is about 24 miles. Between these rafters, the glass roof is supported by light wooden sash bars sloping upwards at an inclination of 2½ to 1. The advantage of this form of roofing for large areas is its lightness and economy. The glass of the roof is inserted into the sash bars, which are grooved to receive it. About 200 miles of sash bars and 896,000 square feet of glass were required for the roof, the aggregate weight of glass being about 400 tons.

The outer enclosure of the Building is formed by dividing the 24-feet spaces between the iron columns into three panels; those on the lower story are filled in with boarding, in the upper stories with glazed sashes. Metal louvres fixed in frames 3 feet high are introduced at the top of each story round the entire circuit of the Building, and in the lower story similar ventilating frames form a plinth of 4 feet high immediately above the floor. The total ventilating surface thus obtained amounts to 40,800 square feet, or very nearly one acre. (The results of the measures taken to ensure the proper ventilation of the Building, will be seen by reference to the return in Appendix No. X., which shows its temperature on each day during the Exhibition.) Each story is crowned externally with a cornice and cresting ornament, and over the columns posts are carried up, to which flag-staffs were fixed.

Three entrances were provided, one in the centre of the south side, and one at each end of the Edifice; and in order to facilitate the egress of large crowds, 17 other doors were provided for exit only. The floor is entirely boarded; on the ground floor an interval of about half an inch is left between the boards to allow dirt from the feet to pass through; the Gallery floor, on the contrary, is close boarded and tongued to prevent the passage of dust.

The roof of the transept has been mentioned as being semi-cylindrical instead of flat like that of the remainder of the Building. This roof is supported by arched timber ribs placed 24 feet apart, or one over every column, the tops forming sockets into the end of which the feet of the ribs are fixed. Horizontal timbers or purlines between these support minor ribs at distances of 8 feet, and upon these a ridge and furrow roof is constructed in a manner similar to that already described, but following the curve of the arched ribs, instead of being worked on a horizontal plane. A narrow gallery is constructed along the ridge of the arched roof to afford access for repairs. The ends of the transept are filled in with fan-like tracery and glazed sashes. The only portion of untransparent roofing in the whole Building occurs on either side of the arched roof just described, where there is a lead flat 24 feet wide, which afforded the opportunity of giving some additional strength to resist any tendency in the arched ribs to spread outwards at the springing.

It has been estimated that no less than 700 tons of wrought iron and 3,800 tons of cast iron were used in the construction of this Building, as well as 600,000 cubic feet of timber.

During the progress of the works many important additions to the Building, as originally undertaken by Messrs. Fox and Henderson for the sum of £79,800, were made. The quantity of ventilation was increased; the galleries were doubled in extent. The external railing, the gas-lighting, both external and internal, extra offices, staircases, and refreshment accommodation were provided, and a considerable extent of additional area was enclosed. The planing of the floor, the ornamental painting, both inside and outside, the boiler-house and its connections with the main building, provisions of water for fountains, and increased provisions for safety from fire, the entire enclosure and separation of the department of machinery in motion, and many other important additions, served greatly to increase the difficulty of completing the work within the given time, as well as considerably to raise the total cost. The total amount at which the whole of the bills for the Building on use and waste terms were settled, after careful examination on the part of Sir William Cubitt, and the officers responsible to him was £107,780 7*s.* 6*d.* On making up their prime cost accounts, however, it was discovered by the contractors that the extraordinary dispatch with which such immense works required to be carried on had so far precluded the possibility of their making those arrangements for economy which they had originally contemplated as to have carried the amount of their net liabilities greatly beyond the balance to which they were entitled under the terms of their contract. They subsequently submitted a statement of their position, accompanied by an expression of their desire to verify the items set down, by permitting a reference to every original voucher calculated to throw a light upon their transactions. After a careful inquiry into the genuine character of the documents, and taking into consideration the important services of Messrs. Fox and Henderson, the unprecedented character of the undertaking, the shortness of time allowed for its completion, and the energy and liberality with which the contractors had laboured to meet the wishes of the Commission, the Commissioners decided that, however objectionable such a step would be under ordinary circumstances, they would in this instance be justified in securing the contractors from that heavy positive loss which they anticipated, and the sum of £35,000 was accordingly paid to them in consideration of those losses on the 7th of November last, upon their signing an agreement to abide by such terms and conditions as the Commissioners might afterwards prescribe with regard to the verification and settlement of the accounts, the occupation and sale of the Exhibition Building, and generally in every other respect.

Various statistics relative to the construction of the Building, are contained in Appendix No. XI.

Division of Space.

It is now necessary to explain the principles upon which, after much deliberation, it was decided to divide the space among the several Exhibitors.

Of the 800,000 feet provided it was estimated that about 400,000 square feet would be required as the net area for the display of the goods. Of this space it was thought reasonable to allot one-half to the productions of England and her colonies, and the other half to foreign countries. Having laid down, therefore, as a principle, that about 200,000 square feet should be reserved for foreign Exhibitors, the Commissioners further proceeded to divide that amount of space between the different countries from which contributions were expected, and to frame a table assigning to each state such an amount of space as the nature of its productions, the extent of its industry, and the facilities of access to this country, appeared to render fair. Thus, to France were allotted 50,000 net square feet, to Belgium 15,000, to the

United States 40,000, to Austria 22,000, and so forth. The amount allowed to each country was immediately communicated to its national Commission, and a list having at the same time been forwarded of the articles necessarily excluded from the Exhibition, and of the general rules laid down for all Exhibitors, the whole of the arrangements of detail were left to that body, which thereupon became singly responsible for the collection and selection of the articles to be exhibited from its own country, and was subsequently entrusted with the arrangement of them in the Building, subject only to the general supervision of the Executive Committee. The Commissioners early laid down the rule that no foreign goods should be admitted for exhibition unless regularly forwarded by the Commission of the nation to which the Exhibitor belonged.

It may here be noticed that some countries having declined a portion of the space offered to them, and an increased total quantity of space having been obtained in the course of the building arrangements, the amounts allotted to several states were subsequently increased. A return in the Appendix shows the spaces originally offered to, and those actually occupied by, each country (Appendix No. XII.)

Arrangements having thus been made for the allotment of space by countries, and similar arrangements having been adopted for our own colonies, it next became important to take measures for dividing the space reserved for the United Kingdom among our own exhibitors. Some exertions appeared also to be necessary in order to bring together a good collection, for the objects and scope of the Exhibition being still very imperfectly understood, many persons, capable of sending valuable contributions, did not at first think of doing so. On the other hand, the amount of space being limited, and it having been decided that no rent should be charged for stalls, it was necessary to adopt a good system of revising the demands for admission, lest the Building should be choked with articles of an inferior character, or with too great a number of the same kind. For this reason circulars were addressed to the Local Committees, calling upon them to use their exertions, in the first place, in procuring as many demands for space as possible from parties in their several districts; these demands they were then to examine, and were to approve only of such articles as appeared likely to add to the interest of the Exhibition; they were then to forward to the Commissioners an account of the space demanded, specifying whether horizontal or vertical, and of the articles for which it was required. These returns, when collected, were added and digested, and were found to present the following results:—

Number of Exhibitors demanding space	8,213	
Amount of horizontal or counter space demanded	416,354	sq. feet.
Amount of vertical or wall space demanded	194,886	,,

From these returns an average was obtained of the number of square feet demanded by each exhibitor, and a proportion was also established between the amount of the space due to each of the four principal sections. The amount of horizontal space then at the disposal of the Commissioners being only 200,000 square feet, or less than half what was demanded, they decided, with certain necessary exceptions, to reduce the average amount allowed to each Exhibitor in the proportion of the space demanded to the space which could be given, and then calculating the number of Exhibitors returned by each district, and allowing the reduced average amount of space for each, they assigned (as a general rule) the amount so obtained to each locality. They did not, however, prescribe the mode in which the space so allotted should be divided, but left it to the Local Committee to distribute it among such of the applicants for space, and in such proportions as would best secure a fair representation of the industry of their district, only requiring them to adhere to the limit assigned to the total amount of space. They also requested them to observe, as nearly as possible, the proportions between the four sections of the Exhibition deduced by the Commissioners from the returns first made. Forms of vouchers were supplied to the several committees, filled up with the names of the Exhibitors, the nature of the articles they tendered for exhibition, and the extent of space they demanded, as shown by the original applications; these vouchers were then subjected to revision and correction by the Local Committee, in order to reduce the entire demand to the proper amount, and were then signed and forwarded to the Commissioners, to whom they became an authority for setting apart a certain amount of space for each individual. By this process the number of intending Exhibitors was reduced from 8,213 to 6,924, and the amount of horizontal space from 416,354 to 201,480 square feet. (See Appendix No. XL.)

The only exception to this mode of proceeding was in the case of the makers of agricultural implements and machinery, a department which was placed under the separate management of the Committee of the Royal Agricultural Society, already alluded to, by whom the total space assigned to agricultural implements was allotted among the various Exhibitors throughout the kingdom.

A Return exhibiting the manner in which the total space provided in the Building was employed, whether as exhibiting space, passages, refreshment courts, &c., is given in Appendix No. XII.

CLASSIFICATION, ARRANGEMENT, AND RECEPTION OF THE GOODS.

Classification of the Goods.

The general plan for the division of the Exhibition, originally adopted by the Society of Arts at the suggestion of His Royal Highness Prince Albert, distributed it into four great sections; the first comprising the raw materials which nature supplies to the industry of man; the second, the machinery by which man works upon those materials; the third, the manufactured articles which he produces; and the fourth representing the art which he employs to impress them with the stamp of beauty. This division having been adopted by the Commissioners, they proceeded to frame detailed lists of the various kinds of articles which would be admissible under each head, a task which they intrusted to seven Committees, already mentioned, under the name of the Committees of Sections, consisting partly of members of their own body, and partly of men of great eminence in the departments severally assigned to them. From these gentlemen they obtained classified lists of the kinds of articles which ought to be admitted. As matters ripened, however, the need of a more complete classification began to be felt, both with reference to the action of the Committees of Selection and Rejection, and still more in respect of the arrangements within the Building, and the proceedings of the Juries. A classification was therefore undertaken and a scheme prepared, by which the four sections were subdivided into thirty Classes. Of these, four were in the section of Raw Materials, viz.:—

I. Mining, Quarrying, Metallurgical Operations, and Mineral Products.
II. Chemical and Pharmaceutical Processes and Products generally.
III. Substances used as Food.
IV. Vegetable and Animal Substances, chiefly used in Manufactures, as Implements, or for Ornament.

The section of Machinery was divided into six Classes (beside four sub-classes), viz.:—

V. Machines for direct use, including Railway and Naval Mechanism.
  V*a*. Carriages.
VI. Manufacturing Machines and Tools.
VII. Civil Engineering, Architectural and Building Contrivances.
VIII. Naval Architecture and Military Engineering; Ordnance, Armour, and Accoutrements.
IX. Agricultural and Horticultural Machines and Implements.
X. Philosophical Instruments and processes depending upon their use.
  X*a*. Musical Instruments.
  X*b*. Horological Instruments.
  X*c*. Surgical Instruments.

The section of Manufactures comprised nineteen, viz.:—

XI. Cotton.
XII. Woollen and Worsted.
XIII. Silk and Velvet.
XIV. Manufactures from Flax and Hemp.
XV. Mixed Fabrics, including Shawls, but exclusive of Worsted Goods (Class XII.)
XVI. Leather, including Saddlery and Harness, Skins, Fur, Feathers, and Hair.
XVII. Paper and Stationery, Printing and Bookbinding.
XVIII. Woven, Spun, Felted, and Laid Fabrics, when shown as specimens of Printing or Dyeing.
XIX. Tapestry, including Carpets and Floor-cloths, Lace and Embroidery, Fancy and Industrial Works.
XX. Articles of Clothing for immediate, personal, or domestic use.
XXI. Cutlery and Edge Tools.
XXII. Iron and General Hardware.
XXIII. Working in Precious Metals, and in their imitation, Jewellery, and all articles of Virtû and Luxury, not included in the other Classes.
XXIV. Glass.
XXV. Ceramic Manufacture, China, Porcelain, Earthenware, &c.
XXVI. Decoration Furniture and Upholstery, including Paper Hangings, Papier Maché, and Japanned Goods.

XXVII. Manufactures in Mineral Substances, used for building or decoration, as in Marble, Slate, Porphyries, Cements, Artificial Stones, &c.

XXVIII. Manufactures from Animal and Vegetable Substances, not being Woven or Felted, or included in other Sections.

XXIX. Miscellaneous Manufactures and Small Wares.

The section of Fine Arts formed a Class by itself:—

XXX. Sculpture, Models, and Plastic Art.

Arrangement of the Goods.

It was originally contemplated to have arranged the whole of the articles exhibited, both Foreign and British, according to a philosophical classification, without reference to the country of production; but in consequence of the delay which occurred in receiving from Foreign countries complete statements either of the space they proposed actually to fill, or of the space likely to be wanted for the several Classes of Articles, it became necessary to adopt a geographical division as the basis of the general arrangement, and to arrange the articles of each nation by themselves, excepting such machinery as required to be exhibited in motion. The Foreign Articles occupied the Eastern half, and the British Articles the Western half of the Building; the Foreign and the Colonial portions being arranged according to their latitudes, the countries lying nearest to the Equator being placed nearest to the Transept.

Subject to these principles, the arrangements on the British side were carried out as follows:—

The Local Committees were requested, in making their allotments of space, to furnish an abstract, showing the number of Exhibitors and the amount of space required in each of the thirty Classes, which, however, from the different interpretations put upon the Classification by so many different persons, only served as an approximation.

They were also requested to furnish another return of the names and addresses of the persons to whom they had allotted space, thus providing materials for an index of the intending Exhibitors of the United Kingdom, which was printed for the use of the Executive Committee and their officers. When the various returns had been completed, and their accuracy ascertained, the vouchers were sorted into the thirty Classes, and the amount of space required by each Class was calculated; after which it was possible to decide the position to be occupied by each Class of the British division of the Exhibition. This was effected, as far as practicable, upon the following principles:—

1. That the lighter articles should be placed in the galleries, and the heavier on the ground floor.

2. That the machinery should be placed towards the North side of the Building, where steam-pipes had been provided, for that part which was to be displayed in motion.

3. That the raw produce should stand towards the southern part of the Building.

4. That the Classes of Manufacture and Fine Arts should occupy intermediate positions, those of the ground-floor having each some share of frontage on the Central Avenue.

Superintendents were in the mean time appointed to each of the thirty Classes, who, with their assistants, proceeded, 1st. To make a plan on a scale of 8 feet to the inch of their respective Classes.

2nd. To group the Exhibitors according to the similarity of their trades and produce, and in some instances to group those of particular towns or districts together, when by so doing unity and independence of action could be obtained.

3rd. To lay down on their enlarged plan the space to be occupied by the goods or counters of each Exhibitor or group of Exhibitors, giving to each, as nearly as possible, the space allotted by the Local Committees. (This plan, when completed, was lithographed.)

4th. To lay down on the floor of the Building the spaces thus fixed on the plan.

5th. To furnish to each Exhibitor or group of Exhibitors a plan of his or their respective allotments.

6th. To give to the Exhibitors all the assistance or information necessary to them, and to see that each, in making his arrangements, attended to the rules issued from time to time by the Executive Commitee to ensure order, dispatch, and, above all, the punctual opening of the Exhibition on the 1st of May.

The result of these arrangements is shown in Plans I. and II. at the commencement of this Report, and the principal regulations necessary to carrying them out have been embodied with the Decisions of Her Majesty's Commissioners (Appendix VII).

Reception of the Goods.

The reception of the goods commenced on the 12th February, and nearly the whole of the British goods had been received and completely arranged before the day of the opening. On the foreign side great progress had also been made, but some of the packages from abroad did not arrive till a later period. Returns are annexed (Appendix XIII. and XIV.) showing the number of packages received in each week to the opening of the Exhibition, and also the numbers received subsequently. In those returns the packages belonging to the United Kingdom are divided according to the classified lists of subjects: the foreign packages, according to the country from which they came.

THE EXHIBITION.

These and all other necessary arrangements being completed, the Exhibition was opened on the 1st of May,—the day named within six weeks after the first issuing of the Royal Commission, and many months before even the plan or size of the Building had been decided upon.

It does not appear necessary for the Commissioners to enlarge upon the circumstances attending the imposing ceremonial of Thursday the 1st of May, when Her Majesty was graciously pleased to open the Exhibition in State, in the presence of 25,000 spectators. The day was kept as a general holiday in the Metropolis, and the crowds who collected outside the Building and filled the adjacent parks, are estimated by the police to have been not less than 650,000 in number. The official account of the opening ceremony, as given in the "London Gazette," is added in Appendix No. XV., which contains the summary of the proceedings of the Commissioners up to that time addressed to Her Majesty by H. R. H. Prince Albert, Her Majesty's most gracious reply, and the form in which the blessing of the Almighty was invoked upon the undertaking.

The perfect order and harmony that prevailed on this occasion—probably the first on which so large a number of persons had been gathered together under one roof in the presence of the Sovereign—could not but be felt as a happy augury of the behaviour of the multitudes of every class and rank in life who thronged the Building from that day to the final close of the Exhibition,—a period of nearly six months. The uninterrupted harmony and good feeling which prevailed throughout that time, more than realized the most sanguine expectations; and it is no slight testimony to the exemplary conduct of the visitors to the Exhibition, that the Commissioners never found it necessary to place any restriction upon the admission of all who presented themselves; and that although it was considered by the police authorities at the time when the Exhibition opened, that not more than 40,000 persons could be admitted with safety into the Building at one time, upwards of 90,000 visitors were afterwards assembled within its walls without danger, and with no more inconvenience than under any circumstances attaches to the collection of a large number of persons within a limited space.

The number of persons who entered the Building on each day during the hours on which it was open to the public, distinguishing those who paid at the doors from those who entered with season tickets (the latter including a small per centage of Staff, Jurors, &c.) will be found in Appendices No. XVI. and XVII. These returns show the total number of visits paid to the Exhibition to have been 6,039,195; but it is not possible to state what proportion of that number consisted of visits paid by distinct individuals, and what of repeated visits by the same persons.

The average number of visitors present on each day appears from the above figures to have been 42,831. The greatest number on any one day was on Tuesday, the 7th of October, when 109,915 persons were counted by the police. The numbers on the Monday and Wednesday of the same week (the last of the Exhibition) were scarcely inferior, having been 107,815 and 109,760 respectively. The greatest number of persons present in the Building at any one time was 93,224 on the 7th of October.

Further remarks on the subject of the visitors are contained in Appendix No. XVII. A diagram illustrating the fluctuations in the numbers under different circumstances is also appended.

An interesting Return will be found in Appendix No. XVIII., showing the number of schools which visited the Exhibition.

After the opening of the Exhibition, a change in the distribution of the duties became necessary, as will appear from Appendix No. V. already mentioned, which gives the Executive Organization both before and after the opening. For the actual care and maintenance of the Exhibition, for ensuring that constant watchfulness which was so necessary among such numerous Exhibitors, and giving them and the public the means of ready redress in case of difficulty, the following arrangements were made :—

The Building was divided into 10 districts, eight upon the British side and two on the Foreign, to each of which a Superintendent was appointed, with an office within his district.

The duties of the District Superintendents were to make daily inspections of every part of their districts, and to make daily reports of the same: To see that the goods of Exhibitors were kept properly cleaned and arranged,—that the Catalogue numbers and other tickets were securely fastened to the articles to which they referred,—that no articles were admitted, without proper permission first obtained,—that no accumulation of rubbish of any kind was permitted under the counters, or on the hangings, girders, &c.: to keep a register of all accidents or damages: to keep a book open for complaints from the Exhibitors or the public: to see to the punctual attendance and good conduct of their subordinates, and send daily to the office of the General Superintendent for any orders which might concern them: to correct the names, numbers, &c., in the successive editions of the Catalogue: to prevent any unauthorized notices or inscriptions: and in general, to communicate personally with the Exhibitors, their servants or agents, in cases in which their co-operation was required by the Executive Committee.

After having been open on 141 days, the Exhibition was finally closed to the public on Saturday the 11th of October, at which time, as has been stated, upwards of six million visits had been paid to it. The following Monday and Tuesday were set aside for the gratuitous admission of Exhibitors and their friends; and on Wednesday the 15th of October, the final closing ceremony took place in the presence of the Exhibitors, Jurors, Foreign and Local Commissioners, Representatives of Local Committees, and others, when, after the presentation of the Jury Reports to the Commissioners, His Royal Highness Prince Albert, on behalf of the Commission, took leave of all those who had given their assistance towards conducting the Exhibition to its prosperous issue. (See Appendix No. XIX.).

The removal of the goods immediately commenced, details respecting which operation will be seen by reference to Appendix No. XX.

The Commissioners having thus brought down a narrative of their proceedings to the close of the Exhibition will now refer to those points which require attention, and which would not admit of being introduced into any chronological arrangement.

Juries.

The mode of appointing and directing the operations of the Juries for awarding the prizes occupied much of the attention of the Commissioners. The Exhibition being an international one, it was obvious that the Juries must also partake of an international character, and the proportions occupied by the exhibitors of each country respectively, appeared to indicate also the proportions which should be observed among the Jurors. One-half of the Exhibition being British, it was therefore decided that one-half of the Jurors should be British likewise; but in order to avoid the invidious task of apportioning the number of Jurors which should be nominated by each nation in order to make up the other half, the Commissioners requested the members of the Foreign Commissions representing the several Foreign countries in London to meet together and suggest such a scale as might appear to them to be just. In order to assist them in doing so, a list of the thirty Classes (afterwards practically increased to thirty-four by the appointment of Sub-Juries for Carriages, in Class V., and for Musical, Surgical, and Horological Instruments, in Class X.) was sent to them, with a note of the numbers of Jurors, varying from six to fourteen, intended to be appointed for each, and they were requested to specify the proportions in which they considered that those numbers should be divided so as to ensure a just representation of each State. The numbers having been thus ascertained, the Government of each country nominated the Jurors to represent it, and these nominations were confirmed by the Royal Commissioners, and testified by Warrants signed by His Royal Highness the President of the Commission, and issued to each Juror. In the selection of the English Jurors, the Commissioners proceeded by requesting the local Committees for places sending important exhibits in any Class, to suggest the names of persons qualified to act as Jurors for that Class; and the Royal Commissioners then selected the proper complement of English for each Jury.

The Juries having thus been chosen, the Commissioners proceeded to appoint a Chairman to each, in doing which they arranged that one half of the Juries should have English, and the other half foreign Chairmen. The duty of electing Deputy-Chairmen was entrusted to the Juries themselves. The Chairmen so appointed were then constituted into a Council, to which was assigned the task of regulating the proceedings of the Juries. In the absence of a Chairman, the Deputy-Chairman was authorised to attend and vote in his stead; but no Deputy-Chairman was allowed to vote when the Chairman of his Jury was present. Viscount Canning, the Chairman of Jury XXIX., was nominated by the Commission to preside over the Council of Chairmen. In the proceedings of the separate Juries, and in the discussions in the Council, the Chairman or President had a second or casting vote in cases of equality.

Besides the original Juries and the directing body of the Chairmen, a further classification of the Juries into groups was adopted at the suggestion of the Foreign Commissioners. It was remarked that as each nation could not be represented on each Jury, it might sometimes happen that exhibitors would consider their interests to have been overlooked for want of the presence of some of their own countrymen, and it was thought that if the awards of each Jury, before being finally made, were brought for confirmation before a meeting of the Jurors of several Classes, comprising allied or analogous subjects, all possibility of jealousy on this ground would be obviated, since in a group of several Juries every country would be represented by, at least, one member. With this view the thirty Juries were arranged in six groups. The first,—that of Raw Materials,—comprised the first four Classes. The second,—that of Machinery,—comprised Classes V. to X. inclusive. The third,—that of Textile fabrics,—comprised Classes XI. to XX. The fourth group comprised Metallic, Vitreous, and Ceramic Manufactures, Classes XXI. to XXV. The fifth comprised Miscellaneous Manufactures, Classes XXVI. to XXIX. The sixth, or Fine Arts Group, was composed of Class XXX., which formed a group by itself.

To assist the Juries in their labours, a Special Commissioner of Juries, with five deputies, one for each group, was appointed, whose duty it was to attend the meetings of the Juries, to obtain for them any information of which they might stand in need; to explain to them the regulations of the Royal Commissioners on all points affecting their proceedings; to ensure, as far as possible, uniformity, or at least harmony, of working between the Juries; to keep records of their proceedings; to enter their awards, and to arrange for their being brought before the groups, and ultimately before the Council of Chairmen in the proper manner. This Commissioner of Juries also attended the meetings of the Council of Chairmen. Neither the Commissioner of Juries nor the deputies had any share in awarding the prizes, or any authority to interfere with the proceedings of the Juries further than by explaining to them the regulations of the Commissioners when any difficulty arose in their application.

As the Juries were, for the most part, composed of men of eminence in various branches of Arts and Science, the Commissioners were anxious that the opportunity should be taken of obtaining from them such reports on the several portions of the Exhibition brought under their notice as might form interesting and valuable records of the existing state of industry and knowledge as indicated by this display of the productions of the world. They accordingly requested each Jury to appoint a Reporter from its own body, and to confide to him the office of preparing such a Report on the section of the Exhibition inspected oy that Jury as should give the view above desired.

A copy of those collective Jury Reports accompanies this Report, and the valuable information which each of them contains, will serve to show the arduous nature of the duties which fell to the lot of the Juries, and the satisfactory manner in which they were discharged. A complete list of the Jurors in the various classes, will be found added to the Jury Reports.

Prizes.

While describing the constitution and operation of the Juries, it will be convenient to explain the nature of the questions which at several times came before the Commission on the subject of prizes.

In the original announcement of the scheme of the Exhibition by the Society of Arts, it had been stated that prizes to a large amount were intended to be distributed among the most meritorious exhibitors, and the Commissioners on their appointment found that a sum of £20,000 had already been provided and set apart for the purpose. At a very early period, however, they found that considerable uneasiness existed in many of the most important seats of manufacture on this subject, and that there was, in particular, a strong objection to enter into competition for money prizes. So decided was this feeling, that the Commissioners had reason to apprehend that if money prizes were offered, many persons, from whom valuable contributions were expected, would altogether decline to exhibit. They, therefore, came to the conclusion that the rewards should be almost wholly confined to the honorary distinction of the grant of a Medal, provision being made for allowing pecuniary gifts, in addition to such honorary distinction, in some few possible cases, such as those in which artisans might have incurred considerable expense in producing some article of interest for the Exhibition, without the probability of being remunerated for the outlay. Acting upon this resolution, they published their intention of striking bronze Medals of various sizes and designs, and they invited public competition for designs for the reverses of three Medals.* By this step the jealousy with which the prizes had in the first instance been regarded was to a great extent allayed; but there still existed an apprehension in some quarters that the Medals would be given as rewards of different degrees of excellence, and the objections entertained and previously urged against the granting of money prizes were again brought forward on the part of some of the local Committees. It was feared by many manufacturers of eminence that if one highest prize were given in a particular department of the Exhibition, the gainer of that prize, though possibly very little superior to his competitors in the same department, or being perhaps indebted for his success to some fortunate accident, would by that circumstance obtain great notoriety and a pre-eminence above other manufacturers which would be seriously detrimental to them. Rather than run the risk of being thus injured by a defeat, some leading firms considered it desirable to abstain from exhibiting altogether, whilst others sought permission to mark their goods as not entered for competition. After attentively considering the subject, the Commissioners decided that, as the object of the Exhibition was rather to encourage all kinds of industry than to stimulate individual competition, and as it would be extremely difficult, if not impossible, for any tribunal to pronounce accurately upon the degrees of merit belonging to Exhibitors of different nations producing articles which must be tried by different standards, it would be inexpedient to assign the Medals as rewards of different degrees of excellence of the same kind. They accordingly announced their intention of instructing the Juries to reward all articles which might appear to them to possess any decided excellence, of whatever nature that excellence might be, and to regard the Medals rather as the means of appreciating and distinguishing the respective characters of the subjects to be rewarded, than as distinctive marks of greater or less merit in the same class of exhibits.

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* The successful competitors for these designs were—

1. M. Hyppolite Bonnardel, of Paris.
2. Mr. Leonard C. Wyon, of London.
3. Mr. G. G. Adams, of London.

On the Council of Chairmen being afterwards called together for the purpose of framing the rules for the guidance of the Juries, (which are given in Appendix No. XXI.,) this subject was naturally one of the first to occupy their attention, and at their first meeting they agreed to recommend to the Commissioners to withdraw the third of the proposed Medals, as a Prize Medal, and to reduce the number to two, of which one should be given by the several Juries, with the sanction of their respective groups of allied Juries, to all Exhibitors whom they might judge worthy on any ground of such a distinction, while the other should be reserved to be given away by the Council itself only in special, and, as it were, exceptional cases, on the recommendation of the several Juries, if sanctioned by their group, and if approved by the Council. This second, or Council Medal, was almost exclusively reserved as a reward for remarkable inventions, and was considered not to be applicable in cases where excellence of execution, however great, was the only merit to be rewarded. The Decision of the Commission on the award of the Council Medal will be found in Appendix No. II. A fuller account of this subject, and of the proceedings of the Juries, will be found in the Report submitted by Viscount Canning, the President of the Council of Chairmen, on presenting the awards of the Juries to the Commissioners, and also in the reply of His Royal Highness the President of the Commission to that Report. (See Appendix No. XIX.)

It may here be mentioned that the Commissioners decided that the third Medal, which was thus withdrawn from competition, should be appropriated to the Jurors themselves in testimony of their services. A set of these three Medals, together with the remaining two that have been struck by order of the Commissioners, viz., the "Exhibitors' Medal" and the "Service Medal," is transmitted with this Report.

Rent—Exclusion of Articles—Prices.

Amongst the earliest questions which arose was one relating to the terms upon which articles should be admitted into the Exhibition. It was necessary that this point should be decided at the outset, as not only the preparation of articles, but to a great extent the amount of the subscriptions also, was found to depend upon it; besides which, it exercised considerable influence upon the question of the Building. As it was intended that the Exhibition should be conducted without any pecuniary aid from the Government, differing in that respect from all the Exhibitions that had been held in other countries, it was clear that it must depend either upon voluntary contributions, or upon arrangements for rendering it self-supporting. If undertaken as a self-supporting scheme, its profits would be mainly derived from the entrance fees to be received from visitors, or from rent to be paid by Exhibitors in proportion to the space occupied by them, or from both these sources jointly. The number of visitors, and the probable amount of the entrance-fees, were, of course, at the opening of the undertaking quite uncertain, and could only form the subject of conjectures, upon the correctness of which little reliance could be placed. The receipts from rent might have been estimated with more certainty, had time been allowed for collecting the proper information, and as the dimensions of the Building might have been made to fit the demand for space, the rent might have been so arranged as to pay for its construction. This mode of proceeding, however, would have involved delay in commencing the Building, which it was important to press forward as much as possible. It was also felt that, the Exhibition being an international one, and the foreigners who were invited to take part in it having been accustomed in their own countries to have space allotted to them without cost, it would be ungracious and injurious to the interests of the Exhibition to demand a rent from them, and if no rent were taken from foreigners, it would have been difficult to demand it from British subjects. The Commissioners, therefore, decided that they would not require the payment of rent in any cases, and as they had reason to believe that many persons who were willing to contribute towards the Exhibition, were refraining from doing so under the expectation that rent would be charged for the space which they intended to apply for as Exhibitors, they caused their decision to be published at an early period of their labours. It will be obvious that this decision had an important bearing upon the subsequent proceedings of the Commissioners in many respects; among other of its effects may particularly be mentioned the necessity which it involved of establishing a system for the selection and rejection of articles, which would have been less felt if admission had not been gratuitous, and if each Exhibitor had been allowed as much space as he was willing to pay for. The principles upon which this selection was conducted have been already explained. The exclusion of some articles,* such as those of a combustible nature, was rendered necessary by a regard to safety; others, as fruits and flowers, being of a perishable character, were not suited to the Exhibition; works of old date, though interesting in an antiquarian point of view, would have been out of place in a collection intended to represent the actual state of industry or science; and lastly, paintings and drawings, for the separate exhibition of which there is abundance of opportunities, and which, if admitted into the Exhibition, would probably have been sent in such numbers as would have been inconsistent with its industrial character, were also refused, except when sent as illustrative of new processes, or new materials. It being however, the wish of the Commissioners to make the Exhibition as comprehensive as possible, they limited their exclusions to those cases only in which they appeared strictly necessary; and for the same reason, though they required every Exhibitor to state in what capacity he appeared, that is to say, whether he was the producer, importer, manufacturer, designer, inventor, or merely the proprietor, of the goods tendered by him, they did not think it right to limit the privilege of exhibiting to those who had been actually connected with the production of the article, though the propriety of doing so was brought under their notice, and very seriously considered by them. In coming to this conclusion, they were actuated not only by the desire to obtain as good an Exhibition as possible, but also by the consideration that it is often difficult to define the precise degrees of merit belonging respectively to the capitalist who supplies the means and stimulates the production of an article, the manufacturer who actually executes the work, the designer who imparts beauty to it, and other persons who in various ways contribute to bring it before the world.

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* See the printed Decisions of the Commissioners, Nos. 17 to 20 and 145 to 148 in Appendix, No. II.

Another question which, as well as the preceding, attracted much attention from the Local Committees and the intending Exhibitors, related to the affixing of prices to articles exhibited. By some it was desired that it should be made compulsory to affix the price to every article, others thought it should be left free to each Exhibitor to do so if he pleased, while others again were of opinion that the affixing of prices ought to be absolutely prohibited. The Commissioners were fully aware of the importance of taking the element of price into consideration in judging of the relative merits of different articles, and they gave instructions to the several Juries to regard cheapness of production as a proper object of distinction. They were not, however, prepared to call upon Exhibitors in all cases to affix prices, partly because they were unwilling that the Exhibition should bear the appearance of a bazaar for the sale of goods, and partly because of the impossibility of laying down any rule which should secure uniformity and prevent deception in the mode of stating the price. The price of any article, unlike its size or weight, is not a fixed and easily ascertained quality, but must depend upon a great number of circumstances which are constantly varying, such as the state of the market, the extent of the demand, the amount of credit given, or the rate of profit usually aimed at. Even the cost price cannot always be regarded as fixed, for it will vary according to the quantity made, while a still graver objection to its being called for arises from the impossibility of verifying the correctness of the price given without inquiries, which it would be far beyond the power of such a body as the Commission to institute. For these reasons they decided to dispense with, and even to forbid, the affixing of prices to articles exhibited, though they did not interfere to prevent each Exhibitor from taking such steps for publishing the prices of the goods exhibited by him as he might think proper. In cases where cheapness of production was put forward as a ground of distinction, the Juries were intrusted with the duty of investigating the accuracy of the prices stated.

Protection against Piracy of Inventions and Designs exhibited.

In order that Exhibitors might not be discouraged from sending to the Exhibition either new inventions or ornamental designs, under an apprehension that they might be subjected to piracy, or might afterwards be prevented from obtaining letters patent for their inventions, Her Majesty's Government, at the instance of the Commissioners, introduced into Parliament two Bills, which were passed into law, by means of which any inventor or designer was enabled, without any payment of fees, to register his claim in respect of the novelty of the article he exhibited, and to obtain, for the period of one year, the same protection from piracy as if he had incurred the cost of taking out letters patent, or a certificate of registration. The Exhibitor also secured the right of obtaining within the year letters patent for his invention, or a certificate of registration for his design, notwithstanding that the invention or design had been thus publicly exhibited.

Nearly seven hundred persons exhibited articles which were fitting subjects for letters patent, and many more were desirous of doing so, but were prevented by the lateness of their applications This novel experiment is considered to have proved quite successful, and to have been beneficial as well to the Exhibition as to invention and design generally. A detailed statement of the number of applications for registration under the Designs Act of 1850, and the Protection of Inventions Act of 1851, is given in Appendix No. XXII. And in Appendix No. XXIII. will be found a further report upon the action of the latter Act.

Arrangements for the Working Classes visiting the Exhibition.

When it became evident that the Exhibition would prove a sufficiently powerful attraction to render it probable that many visitors would come to it from distant parts of this country and also from abroad, much interest, and some uneasiness, was felt as to the probability of their finding adequate means of locomotion, and sufficient accommodation on their arrival, and the attention of the Commissioners having been directed to this subject, they (on the 6th of July, 1850,) appointed Mr. Alexander Redgrave, of the Home Office, to co-operate with Sir William Reid in obtaining information, and making any arrangements that might be necessary for enabling the working-classes to visit the Exhibition, and in communicating on this subject with the proper authorities in London, with the Railway Companies, and with the Local Committees.

The result of Mr. Redgrave's inquiries was such as to convince the Commissioners that it would be unnecessary and undesirable that they should interfere with the natural course of private arrangements on these points, and no steps of importance were taken, beyond those of communicating with the principal Railway Companies, on the subject of the reduction of fares to visitors coming to the Exhibition, and of making known to the several Local Committees the arrangements which were adopted in different parts of the country to facilitate the visits of the working classes, together with such suggestions as the experience of the Commissioners enabled them to offer.

Since the closing of the Exhibition, however, Mr. Redgrave has addressed to His Royal Highness the President of the Commission an interesting and valuable Report, showing the few measures that were taken, and illustrating the social condition of London during the Exhibition, which will be found attached to this Report. (See Appendix No. XXIV.)

Police Arrangements.

The subject of the police arrangements to be adopted on the occasion of the Exhibition as respects the admission of visitors, the security of articles exhibited, and the internal and external watching of the building generally, was brought under the notice of the Commissioners many months previous to the opening of the Exhibition. It was felt by them that a matter of so much importance should be left entirely in the hands of the Commissioners of Police, acting under the authority of the Home Office, and the Royal Commissioners signified their readiness to defray such portion of the expenses that would be incurred as might seem to be fairly chargeable upon the funds of the Exhibition. The amount which it was agreed should be paid by them towards the expence of the Police employed *outside* the building was £5,043 19*s.* 4*d.*, the question of the sum payable for those employed *inside* the building remaining open for future arrangement, it being understood that they should defray the whole of that expense. The sum which has accordingly been paid by the Commissioners for the internal Police, up to the 11th October, 1851, has been £12,382 2*s.* 10*d.*, to which has to be added a further sum of £2,221 15*s.* 7*d.* for similar expenses since that date and up to the 14th January last, when the whole of the Police were finally withdrawn from the interior of the building.

It therefore appears that the total amount of Police expenses in connection with the Exhibition incurred by the Commission has been £19,647 17*s.* 9*d.*

With regard to the general Police arrangements, and the various questions connected therewith, the Commissioners feel that the valuable Report addressed to the Home Office by the Chief Commissioner of Police, and which, having been communicated to them, will be found appended to this Report, contains all the necessary information. (See Appendix No. XXV.)

The largest number of Police employed inside the building at any one time was on the 26th and 27th of May (the first shilling days), when there were no less than 8 Inspectors, 38 Sergeants, and 609 Constables on duty. The average number subsequently employed varied from 350 to 400.

In addition to the above, 36 Foreign and 24 Provincial Police were more or less employed during the Exhibition, together with 26 Interpreters.

It affords the Commissioners much pleasure to refer to that portion of Sir R. Mayne's Report, which shows the almost entire absence of crime in connection with the Exhibition. It appears that although the number of visits paid to it exceeded six millions, not more than 21 persons were apprehended in the building on any charge whatever.

In order to mark their sense of the admirable conduct of the Police force employed, the Royal Commissioners awarded a sum of £2,710 to be distributed in gratuities amongst them.

Custom-House Arrangements.

With the view of facilitating as much as possible the admission of Foreign goods for Exhibition, the Commissioners at an early period put themselves in communication with the Lords of the Treasury and the Commissioners of Customs, with a view to obtaining such fiscal arrangements as might be adequate for the protection of the Revenue, without involving any unnecessary restrictions upon the admission of articles intended to be exhibited. The Commissioners of Customs readily undertook to place the Building in Hyde Park on the footing of a bonded warehouse, and to establish such regulations for the security and safe custody of the goods deposited there, as should suffice to guard against any abuse of this privilege. They agreed also to dispense with some of the usual formalities on the landing of the goods, and to allow them to be conveyed, without examination, direct from the waterside to the place of Exhibition, where they should be opened for the first time by the Importer or his Agent, and examined in the presence of the proper officer of Customs.

Eight ports (London, Liverpool, Bristol, Hull, Newcastle, Dover, Folkestone, and Southampton), were accordingly named for the importation of goods intended for Exhibition, and a certain number of Custom-House agents were nominated by the Commissioners of Customs, to take charge of such goods on their arrival. All articles transmitted through any of the agents so nominated were exempted from the usual examination at the waterside, and forwarded direct to Hyde Park. When once placed in the Building, the Officers of Customs took charge of them, and no article was allowed to be removed without their consent. Such articles as were not sold or entered for consumption in this country, were re-exported at the close of the Exhibition, without having been subjected to any duty whatever. It is gratifying to be able to state that no attempt was made by any person to abuse the privilege thus afforded. Great liberality was shown by the Commissioners of Customs in cases in which the articles exhibited had suffered detriment or waste, as in the case of silks and other goods, of which the value had been much deteriorated by exposure, and of many smaller articles of consumption (such as essences, sweetmeats, snuff, &c.), in which a considerable waste had taken place. It being clear that the diminution caused by such waste had not been the result of fraud, no duty was charged in respect of it.

The whole of the Custom-house arrangements in connection with the Exhibition, were placed under the direction of Mr. Rolls, one of the principal officers of the Board of Customs. Owing to the manner in which the business was conducted, it was found that the revenue regulations offered but little impediment in the arrangement of the Foreign and Colonial divisions of the Exhibition. Some idea may be formed of the amount of business thrown upon this department, from the fact that no less than 11,644 separate packages were received, many of which were of immense size, and contained from 10 to 25 distinct internal packages from as many different contributors. The first arrival in the Building took place on the 12th February 1851, and from that time to the 1st of May the labours of the officers were incessant. The staff, engaged under the direction of Mr. Rolls (who was assisted by Mr. Lucock during a portion of the time), consisted of 17 landing waiters with their weighing porters. The Corps of Royal Sappers and Miners also rendered material assistance. The warehousing department was placed under the control of Mr. Fairman with a staff of four clerks. The landing and examination of the goods involved nearly 1,700 long-room entries, and 842 landing orders. At the close of the Exhibition the goods taken for home use were delivered on upwards of 2,000 duty-paid warrants and deposit notes, and those to be returned were packed on more than 4,000 requests, and delivered on 80 removal orders to outports and the regular bonded warehouses, and on 2,300 direct export entries.*

Precautions against Fire—Water Supply.

The Commissioners have placed in Appendix No. XXVI. a Report which they have caused to be prepared on the steps taken to provide against the danger of fire in the Building. This important subject occupied their attention at an early period, and, as was to have been expected, was the occasion of many anxious inquiries from intending Exhibitors. Although the Building itself was in some measure constructed of incombustible materials, this circumstance could not be regarded as affording any great security against the risk of fire, nor did it appear possible by any contrivance to render so large an edifice fire-proof. The Commissioners accordingly declined from the first to give intending Exhibitors any guarantee as to the security of their goods, though they readily undertook to adopt every precaution to prevent fire breaking out, and to extinguish it, should it unfortunately occur. It was left to each Exhibitor to insure his own goods if he thought it desirable to do so, but the arrangements adopted by the Commissioners ultimately proved so satisfactory that many who had at first intended to take this precaution abandoned it as unnecessary. A Plan to illustrate the arrangements made for security against fire, accompanies this Report. (See page 130.)

The supply of water required for the various purposes of the Exhibition, such as the steam for working the machinery, the hydraulic apparatus, the centrifugal and other pumps, the supply of the fountains, refreshment rooms, and water-closets, the watering of the trees, roads, and the building itself, as well as the supply in case of fire, was obtained from the works of the Chelsea Water Company, situated on the north bank of the Thames at Chelsea Reach, about two miles (by the course of the main pipes) from the Exhibition Building. Some time before the opening of the Exhibition, the Chelsea Company had determined to erect two new engines of 20 horse power each, and to lay a main pipe from them of 9 inches diameter for supplying the neighbourhood of Kensington. The course of this main was fortunately such as to enable the Company readily to supply the Exhibition with the quantity of water required, in a pure filtered state, a circumstance highly conducive to the comfort of the visitors, great numbers of whom were in the habit of availing themselves of the supply thus afforded by the several fountains and other reservoirs in the Building. No very accurate account of the quantity of water consumed can be given, as it was supplied without restriction, but the engineer of the Company estimates it as ranging from 100,000 to 270,000 gallons a-day.

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* It may be noticed that no less than 270 gallons of Eau de Cologne, Acqua d'oro, and other scents were distributed (duty free) through the building; that upwards of 500 lbs. of snuff and 250 lbs. of tobacco in other forms were consumed by persons tasting in the Portuguese, Turkish, and American departments; and that as much as 480 lbs. of chocolate drops were consumed in the Saxon division alone, besides a large quantity in the French, and 140 lbs. in the Turkish division.

Prices of Admission.

The important question of the price or prices at which the Exhibition should be opened to visitors, required much consideration. While it was obviously necessary to adopt such arrangements as might be expected to produce a sum sufficient to defray the heavy expenses which the public subscriptions were quite inadequate to meet, it was at the same time a main object with the Commissioners to fix the prices of admission at so moderate a rate as to allow the greatest possible number of persons of all classes to visit the Exhibition. They were also aware of the importance of consulting the probable convenience of visitors, of providing for the security of the articles exhibited, and of so moderating the influx of large numbers in the early days of the Exhibition, as to enable their staff to acquire the necessary experience of their duties with as few impediments as possible.

A Committee was therefore appointed for the purpose of considering and reporting upon the scale of charges which it might be advisable to adopt; and after receiving a good deal of evidence bearing upon the subject, drawn partly from the experience of local Exhibitions that had previously taken place in this country, and partly from other and more general considerations, the Committee submitted a Report, which was approved by the Commission, in which were recommended the rates that prevailed throughout the whole period of the Exhibition, with one or two slight modifications. Those rates were as follows:—

	£.	*s.*	*d.*
Season Tickets, Gentlemen's	3	3	0
,, Ladies'	2	2	0
(These were not transferable, and on the 1st of May season tickets *only* were available.)			
May 2nd and 3rd, each day	1	0	0
May 5th to May 24th	0	5	0
On and after May 26th:—			
Mondays, Tuesdays, Wednesdays, and Thursdays	0	1	0
Fridays	0	2	6
Saturdays	0	5	0

The only alterations subsequently made in these rates were a reduction in the price of season tickets to 30*s.* and 20*s.* for gentlemen's and ladies' tickets respectively, and a reduction in the rate of admission on Saturdays to 2*s.* 6*d.*, both of which changes came into operation at the beginning of August.

The results of these arrangements will be seen by reference to Appendices No. XVI. and XVII., which show the number of visitors and the receipts at the doors on each day that the Exhibition was open, arranged week by week, and also so as to compare together the same days of each week. The influence of price upon the number of visitors is also shown by the coloured diagrams already alluded to, which is reduced from a larger one drawn up during the Exhibition and shown in the Transept to the public.

Catalogues.

It was obviously necessary that a complete and accurate Catalogue should be made of the articles exhibited, not only for the use of visitors, and of the Commissioners, Jurors, and others during the continuance of the Exhibition, but also as an enduring record, in the most perfect shape, of the Exhibition itself. The Commissioners considered that these advantages would be best secured by submitting to public competition the exclusive privilege of preparing and selling the Official Catalogues. Of these the cheaper one was, in accordance with the conditions of tender laid down by the Commissioners, to be sold to the public at the price of one shilling, and to contain not less than 320 pages of foolscap quarto (printed in double columns). Out of the above sum a royalty of twopence per copy was to be paid to the Commissioners.

In addition to the Shilling Catalogue, an Illustrated Catalogue (also official), extending to two or more volumes, was to be produced, the price and manner of printing of which was left to the discretion of the contractors. An option of preparing more editions than the two above mentioned was also given.

The Commissioners adjudged the right of printing and sale of these Catalogues to the joint tender of Messrs. Spicer Brothers and Messrs. Clowes and Sons, who offered the sum of £3,200 for the privilege, (besides the royalty payable on the sale of the small Catalogue). The difficulties necessarily attendant upon the execution of the engagements entered into by the Catalogue contractors (owing not only to the extensive nature of the undertaking itself, but also to the changes consequent upon the continual arrival of additional articles from foreign countries for a long period after the opening of the Exhibition) were surmounted by them in a very satisfactory manner, and the volumes that accompany this Report will serve to show, both by their accuracy, completeness, and their general execution, that the Commissioners have every reason to be satisfied with their having entrusted the preparation of the Catalogues to Messrs. Spicer and Clowes.

Appendix No. XXVII. contains a statement furnished by the contractors, showing the extent of the sale of the different Catalogues, and other works illustrative of the Exhibition, which they were authorized to sell in the Building.

Refreshments.

The contract for the supply of refreshments in the Exhibition Building was undertaken by Messrs. Schweppe and Co., who paid the sum of £5,500 for the privilege, being the highest offer from responsible parties. It will be seen by reference to Appendix No. XXVIII., that the amount received by the contractors from the sale of refreshments during the continuance of the Exhibition was upwards of £75,000 Appendix No. XXIX. exhibits the almost incredible quantity of provisions consumed.

Waiting Rooms and Washing Rooms.

The receipts under these two heads amounted to no less than £2,441 15*s.* 9*d.* in the former case, and £443 17*s.* 6*d.* in the latter; the number of persons making use of the waiting rooms having been 827,820, and of the washing rooms 78,439. It being a somewhat novel step to provide these conveniences for the public on a large scale, and at the same time to derive a revenue from them, some additional particulars relative to the subject have been given in Appendix No. XXX.

FINANCIAL AND OTHER RESULTS OF THE EXHIBITION.

The organization by which the whole financial arrangements of the Commission have been carried on, has been already explained. The sanction of the Finance Committee was requisite before any item of expenditure could be incurred, and the account of payments actually made from estimates thus sanctioned by them, and approved by the Commission, was submitted monthly to them by the Financial Officer, accompanied by the necessary vouchers, and examined and reported upon by them to the Commissioners, who were also regularly furnished at each Meeting with a report of their proceedings, together with a statement of the financial position of the Commission.

The Governor and Deputy Governor of the Bank of England have had the goodness to undertake the duty of auditing the accounts of the Commission, and the balance sheet of receipts and expenditure, as examined and approved by them, is given in Appendix No. XXXI. It will be observed that the statement is prepared up to the 29th of February 1852. Until the surplus remaining at the close of the Exhibition, and which has been already referred to, shall have been disposed of, it will be impossible for the Commissioners finally to wind up their accounts. While drawing the line, therefore, at the date just mentioned, it is their intention to include, in the subsequent Report which it will be their duty to lay before Her Majesty, all the necessary particulars relating to the disposal of the balance that remained in their hands on the 29th of February, with a duly audited balance sheet continued from that date.

In addition to the audited accounts above alluded to, the Commissioners have caused a return to be furnished by their financial officer, containing an analysis of their receipts and expenditure up to the 29th February 1852, arranged under the various departments of the Exhibition. This return will be found in Appendix No.

XXXII. It will be seen, by reference to it, that the total net receipts of the Commissioners (exclusive of the advances made by Messrs. Munday on account of the Prize Fund, and by the Bank of England on the security of the Guarantee Bond), amounted at that time to £506,100 6*s.* 11*d.*; and the expenditure to £292,794 11*s.* 3*d.*, leaving a balance in hand of £213,305 15*s.* 8*d.** Nearly the whole of this sum was invested in Exchequer Bills, and the remainder stood to the credit of the Commissioners at the Bank of England and Messrs. Coutts's.

The Commissioners are not yet in a position to state with accuracy what portion of this balance still remains payable on account of expenses incurred up to the 29th of February in connexion with the Exhibition (such as the cost of printing the Jury Reports, which it is intended to present to each Exhibitor,—the balance held as a reserve by the Commissioners under the terms of the contract for erecting the Building,—and other payments), and what portion may be considered as the actual and *bonâ fide* surplus, after every liability shall have been discharged, and the accounts finally wound up; but they have no reason to suppose that the net surplus will be less than the sum estimated by them in their Report to Her Majesty of the 6th November last, viz., £150,000.

Season Tickets.

The total number of season tickets sold was 25,605, of which 13,494 were gentlemen's and 12,111 ladies' tickets, the net amount paid into the Bank of England under this head being £67,514 1*s.* Of this sum £202 10*s.* was received from the sale of 135 gentlemen's and £184 from the sale of 184 ladies' tickets, at the reduced rates of 30*s.* and 20*s.* respectively.

Receipts at the Doors.

Appendix No. XXXIII. shows £356,808 1*s.* to have been the gross amount so received, from which a sum of £529 17*s.* 5*d.* has to be deducted for loss on light gold, and defaced, spurious, and foreign coin (see Appendix No. XXXIV), leaving a net balance paid into the Bank of England of £356,278 3*s.* 7*d.* An examination of the amount received each day at the different prices, whether at the 5*s.* charge during the first three weeks or at the lower rates that subsequently prevailed, will afford satisfactory evidence of the concurrence of the public in the principles upon which the charges were arranged.

The Exhibition having been open to the public on 140 days (exclusive of the 1st of May, when no money was taken at the doors), it follows that the average daily receipts for entrance to the Building amounted to £2,548 for the whole period of the

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* The Accounts for the month of March 1852 have been examined and approved by the Commission, but not having yet been passed by the Auditors are not included in the general account. The receipts for that month were, £1,713 0*s.* 2*d.* (Interest on Exchequer Bills, &c.) and the disbursements, £3,601 15*s.* 10*d.*, the Surplus at the close of the month being thereby reduced to £211,417.

Exhibition, while during the first three weeks the average receipts, at the charge of 5*s*., were £2,546.

The very remarkable agreement between these two amounts conclusively proves that the scale of charges was so apportioned as to place all classes of the community on an equal footing, in respect of the facilities given them for visiting the Exhibition; and that the reduction in the rates came into effect at the very time which experience afterwards showed to be the one best adapted for ensuring the financial success of the undertaking.

Appendix No. XXXIII. also shows the daily receipts from minor sources, and Appendix No. XXXV. contains an analysis which may be considered interesting, showing the average expense incurred by each class of visitors to the Exhibition.

Value of Articles Exhibited.

For the purpose of forming an estimate of the value of the articles exhibited, a circular was sent to each Exhibitor, requesting him to fill up the blank form that accompanied it, with a statement of the value of his goods. The return given in Appendix No. XXXVI. contains a summary of the information received in reply, from which it appears that the total value of the property collected together in the Exhibition may be estimated as approaching £2,000,000.*

Collection of Articles presented to the Commissioners.

During the Exhibition, the Commissioners authorized a request to be addressed to the various Exhibitors to furnish such specimens, drawings, and models of articles exhibited, as might form an interesting record of the state of the Arts at this period. This appeal was responded to so generally that a large collection of articles of trade, both raw and manufactured, is now in the possession of the Commissioners, upon the ultimate disposal of which they will report at a future period. Full details will be found in Appendix No. XXXVII.

The Trade Circulars of many Exhibitors containing much valuable information, it was considered desirable, particularly for the benefit of the Colonies, to form a collection of such Circulars as Exhibitors might be disposed to furnish for that purpose. Fifty sets of Circulars have accordingly been collected, bound, and will be immediately distributed. Further particulars on this subject will be found in Appendix No. XXXVIII.

Proportion in which each Country was represented.

The Commissioners have caused a return to be prepared of the amount of space actually occupied by each class of goods exhibited, foreign as well as British, which will show the proportions in which they were sent (Appendix No. XXXIX). The same table shows the number of exhibitors in each country and class, from which it appears that the total number of exhibitors was 13,937, of whom 7,381 belonged to Great Britain and her Colonies, and 6,556 to Foreign Countries.*

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* It being impossible to ascertain the value of the Koh-i-Noor Diamond, which Her Majesty graciously allowed to be exhibited, it is not included in this estimate.

In order to show the proportion contributed to the Exhibition by different parts of this country a table of Local Committees has been prepared; showing in each Class the amount contributed in money, the extent of space claimed and allotted, and the number of exhibitors (Appendix No. XL).

The character of the Exhibition itself hardly falls within the scope of this Report. The Catalogues that accompany it contain a complete account of the several articles exhibited, and the Jury Reports that are also sent herewith form the best record of their quality and merits.

A classified return of the Jury Awards, showing the Prizes awarded in each of the Thirty Classes to the Exhibitors of each country, is given in Appendix No. XLI.

Of the general admiration excited by the display, it would be superfluous for the Commissioners to give any account. Of the beneficial effects which may be anticipated from a spectacle so novel and so wonderful, this is not the place to speak. It will probably be long ere the impulse it has given to industry and civilization will have reached its highest point; and it is not too much to hope that it may be ages ere that impulse will cease to be felt.

In order to record in a permanent manner the sense they entertained of the valuable assistance afforded them by Foreign States, the Commissioners caused a communication to be addressed to the various Foreign Commissions, stating their intention of presenting to the Governments of their respective countries, as a memorial of the Exhibition, a complete set of the Medals struck by their order, a copy of the Illustrated Catalogue, and a copy of the Jury Reports, illustrated by a collection of photographs of many of the most important articles exhibited. These are now in course of preparation.

On the other hand many letters were addressed to the Commissioners and the Executive Committee, by the Foreign Acting Commissioners upon the termination of their labours, and their return to their own countries. Copies of these will be found in Appendix No. XLII.

We have now endeavoured, in pursuance of the terms of our Charter of Incorporation, to render for the information of Her Majesty as full an account as possible of the manner in which we have discharged the important duties which She has been graciously pleased to entrust to us, so far as they are yet completed. Having been deeply impressed with a sense of the responsibility attending the execution of a scheme so entirely unprecedented as that of an Exhibition in which the whole world were to be the Exhibitors—in which the productions of every race and every clime were for the first time to be gathered together, and the sons of industry throughout the globe were to meet each other in a spirit of friendly competition—we felt that no exertion ought to be wanting on our part in order to insure success to so vast an undertaking.

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* In these numbers the Exhibitors of India, Turkey, Egypt, and Tunis, are not included, as well as many individuals who joined together to send up valuable contributions, and who in the official enumeration form but one Exhibitor. Including those now alluded to, the number of contributors was between 15,000 and 16,000.

Whatever may have been the extent of that success, we are conscious that it is not to any merit on our part, nor even to the zealous and efficient assistance which we have received from those who have been employed under us, that it is principally owing. It is to the cordial co-operation which we have met with in every country, and from every class; it is to the gracious and unchanging favour of our Queen, and the zealous aid of every order of Her subjects, of the rich and the poor, of the noble and the artisan; it is to the assistance of all who are eminent in science and in art, in industry and in talent; above all, it is to the blessing of God upon our labours that we attribute the happy issue to which they have been brought.

It is our earnest prayer that He who has thus far protected an undertaking designed to promote the common good of mankind, may give to it that effect which it was intended to produce; and that the Exhibition of 1851 may prove in its results to have been the means of advancing the happiness and prosperity, not only of this, but of all other countries, and of strengthening, permanently and surely, the bonds of peace, of friendship, and of brotherhood throughout the world.

ALBERT.
BUCCLEUCH.
DERBY.
ROSSE.
GRANVILLE.
EGERTON ELLESMERE.
OVERSTONE.
J. RUSSELL.
H. LABOUCHERE.
W. E. GLADSTONE.
R. WESTMACOTT.
CHARLES LYELL.
C. L. EASTLAKE.
W. CUBITT.
CHARLES BARRY.
THOMAS BARING.
THOMAS BAZLEY.
RICHARD COBDEN.
T. F. GIBSON.
JOHN GOTT.
W. HOPKINS.
PHILIP PUSEY.
J. M. RENDEL.
JOHN SHEPHERD.
ROBERT STEPHENSON.
WILLIAM THOMPSON.

Palace of Westminster,
24th April, 1852.

APPENDIX No. I.

Return showing the Names of the Members of the Royal Commission, and of the different Committees appointed by it, with the Number of Meetings held by each, up to the 24th April, 1852, followed by a List of Local Commissioners.

HER MAJESTY'S COMMISSIONERS—(Fifty-four Meetings).

President, His Royal Highness Prince Albert, K.G., F.R.S.

His Grace the Duke of Buccleuch, K.G., F.R.S.
Rt. Hon. the Earl of Derby.
Rt. Hon. the Earl of Rosse, K.P., Pr. of R.S.
Rt. Hon. Earl Granville.
Rt. Hon. the Earl of Ellesmere, F.S.A.
Rt. Hon. Lord Overstone.
Rt. Hon. Lord John Russell, M.P., F.R.S.
Rt. Hon. Sir R. Peel, Bart., M.P. (*deceased*).
Rt. Hon. Henry Labouchere, M.P.
Rt. Hon. W. E. Gladstone, M.P.
Sir Richard Westmacott, R.A.
Sir Charles Lyell, F.R.S.*, W. Hopkins, Esq. — As successive Presidents of the Geological Society.
Sir Charles Lock Eastlake, P.R.A., F.R.S.
Sir W. Cubitt, F.R.S.*, J. M. Rendel, Esq. — As successive Presidents of Inst. Civ. Eng.
Sir Charles Barry, R.A., F.R.S.
Thomas Baring, Esq., M.P.
Thomas Bazley, Esq.
Richard Cobden, Esq., M.P.
Thomas Field Gibson, Esq.
John Gott, Esq.
Philip Pusey, Esq., M.P., F.R.S.
John Shepherd, Esq.,† as Chairman of the Hon. East India Company.
Robert Stephenson, Esq., M.P., F.R.S.‡
Alderman Thompson, M.P.

J. Scott Russell, Esq., F.R.S., Sir Stafford Henry Northcote, Bart., C.B — *Secretaries.*
Edgar A. Bowring, Esq., *Acting Secretary.*

* Sir Charles Lyell and Sir W. Cubitt were elected Members of the Commission on the expiration of their term of office as Presidents of the respective Institutions.
† Successor to Sir A. Galloway, K.C.B. (*deceased.*)
‡ Appointed by Royal Warrant, 12th February, 1850.

EXECUTIVE COMMITTEE.

Col. Sir W. Reid, R.E., K.C.B., F.R.S. (*Chairman.*)
Henry Cole, Esq., C.B.
Charles Wentworth Dilke, Esq.
Francis Fuller, Esq.
George Drew, Esq.
Matthew Digby Wyatt, Esq. (*Secretary.*)

TREASURERS TO ROYAL COMMISSION.

Arthur Kett Barclay, Esq.
William Cotton, Esq.
Sir John William Lubbock, Bart.
Samuel Morton Peto, Esq., M.P.
Baron Lionel de Rothschild, M.P.

SPECIAL COMMISSIONERS TO COMMUNICATE WITH LOCAL COMMITTEES.

Dr. Lyon Playfair, C.B., F.R.S.
Lt.-Col. J. A. Lloyd, F.R.S.

FINANCE COMMITTEE—(Sixty-three Meetings).

Rt. Hon. Earl Granville (*Chairman*).
Rt. Hon. Lord Overstone.
Rt. Hon. H. Labouchere, M.P.
Rt. Hon. W. E. Gladstone, M.P.
Sir W. Cubitt, F.R.S.
T. Baring, Esq., M.P.
R. Cobden, Esq., M.P.
T. F. Gibson, Esq.
Sir A. Y. Spearman, Bart.
S. M. Peto, Esq., M.P.

Mr. Bowring acted as Secretary to this Committee.

APPENDIX No. I.

BUILDING COMMITTEE—(Thirty-eight Meetings).

His Grace the Duke of Buccleuch, K.G., F.R.S.
Rt. Hon. the Earl of Ellesmere, F.S.A.
Sir Charles Barry, R.A., F.R.S.
Sir W. Cubitt, F.R.S, Pres. I. C. E.
Robert Stephenson, Esq., M.P., F.R.S.
C. R. Cockerell, Esq., R.A.
I. K. Brunel, Esq., F.R.S.
Thomas L. Donaldson, Esq., M.I.B.A.

Mr. Scott Russell acted as Secretary, and Mr. M. D. Wyatt, Mr. Owen Jones, and Mr. H. C. Wild, acted with this Committee.

SUBSCRIPTION COMMITTEE—(Twelve Meetings).

Rt. Hon. Earl Granville.
Alderman Thompson, M.P.
Francis Fuller, Esq.
George Drew, Esq.

Mr. Bowring acted as Secretary to this Committee.

MEDAL COMMITTEE—(Three Meetings).

Rt. Hon. Lord Colborne.
W. Dyce, Esq., R.A.
J. Gibson, Esq., R.A.
C. Newton, Esq.
Mons. Passavant.
Dr. Waagen.
M. Eugene Lamy.

MEDAL INSCRIPTION COMMITTEE—(Six Meetings).

Rt. Hon. W. E. Gladstone, M.P.
The Lord Lyttelton.
Rt. Hon. T. B. Macaulay.
The Rev. H. G. Liddell.
The Very Rev. The Dean of St. Paul's.

Mr. Scott Russell and Mr. Bowring acted as Secretaries to this Committee.

CONTRACT COMMITTEE—(Eight Meetings).

Rt. Hon. Earl Granville.
Rt. Hon. Sir R. Peel, Bart., M.P. (*deceased.*)
Rt. Hon. H. Labouchere, M.P.
Sir William Cubitt, F.R.S., Pr. of I.C.E.
Sir Charles Barry, R.A., F.R.S.

Mr. Bowring acted as Secretary to this Committee.

PRICES OF ADMISSION COMMITTEE—(Five Meetings).

Rt. Hon. Earl Granville.
Rt. Hon. Lord Overstone.
Sir William Cubitt, F.R.S., Pr. of I.C.E.
Col. Sir W. Reid, R.E., K.C.B., F.R.S.
Thomas Bazley, Esq.
T. F. Gibson, Esq.

Mr. Bowring acted as Secretary to this Committee.

CATALOGUE COMMITTEE—(Two Meetings).

Rt. Hon. Earl Granville.
Rt. Hon. Lord Overstone.
Sir William Cubitt, F.R.S., Pr. of I.C.E.
Henry Cole, Esq., C.B.
Charles Wentworth Dilke, Esq.
Dr. Lyon Playfair, C.B., F.R.S.

Mr. Bowring acted as Secretary to this Committee.

COMMITTEE APPOINTED FOR COMMUNICATING WITH THE LOCAL COMMITTEES OF THE METROPOLIS—(Six Meetings).

Rt. Hon. Earl Granville (*Chairman*).
Most Noble the Marquis of Salisbury, K.G.
Rt. Hon. Viscount Canning.
Rt. Hon. Lord Ashburton.
Rt. Hon. the Lord Mayor of London.
Sir John Boileau, Bart., F.R.S.
F. Smedley, Esq., High Bailiff of Westminster.
Edward Cardwell, Esq., M.P., F.S.A.
Joseph Locke, Esq., M.P., F.R.S.
W. Cotton, Esq.
Thomas Gibson, Esq.
Dr. Arnott, F.R.S.
Joshua Field, Esq.
Charles Manby, Esq., F.G.S.

Sir Stafford Northcote and Mr. Bowring acted as Secretaries to this Committee.

SURPLUS COMMITTEE—(Three Meetings).

His Royal Highness Prince Albert, K.G., F.R.S. (*Chairman*).

Rt. Hon. Earl Granville.
Sir William Cubitt, F.R.S.
Sir Charles Lock Eastlake, P.R.A., F.R.S.
Sir Charles Lyell, F.R.S.
Thomas Baring, Esq., M.P.
Richard Cobden, Esq., M.P.

Mr. Bowring acted as Secretary to this Committee.

LIST OF COMMITTEES.

MEMBERS OF COMMITTEES OF SECTIONS.

Section I.—Raw Materials and Produce.

(*a*.) Mineral Kingdom—(Five Meetings).

Sir Charles Lyell, F.R.S.
Sir Henry T. De La Beche, C.B., F.R.S.
Sir Roderic Murchison, F.R.S.
Dr. Lyon Playfair, C.B., F.R.S.
Richard Phillips, Esq., F.R.S. (*deceased.*)

Mr. Scott Russell acted as Secretary to this Committee, and Mr. Dilke attended on the part of the Executive Committee.

(*b*.) Vegetable Kingdom—(Six Meetings).

Philip Pusey, Esq., M.P., F.R.S.
Sir William Hooker, LL.D., F.R.S.
Professor Royle, M.D., F.R.S.
Professor Lindley, D.C.L., F.R.S.
Professor Faraday, D.C.L., F.R.S.
Professor Solly, F.R.S.
Humphrey Brandreth, Esq.
W. Fisher Hobbs, Esq.

Mr. Scott Russell acted as Secretary to this Committee, and Mr. Dilke attended on the part of the Executive Committee.

(*c*.) Animal Kingdom—(Five Meetings).

Rt. Hon. Earl of Derby.
Professor Owen, F.R.S.
Professor E. Forbes, F.R.S.
Professor Brande, F.R.S.
Professor Hofmann, F.R.S.

Mr. Scott Russell acted as Secretary to this Committee, and Mr. Dilke attended on the part of the Executive Committee.

Section II.—Machinery—(Seven Meetings).

Rt. Hon. the Earl of Rosse, K.P., Pr. of R.S.
Sir John Rennie, F.R.S.
Sir John Herschel, Bart., F.R.S.
Sir William Cubitt, F.R.S., Pr. of I.C.E.
Robert Stephenson, Esq., M.P., F.R.S.
The Astronomer Royal, F.R.S.
Philip Pusey, Esq., M.P., F.R.S.
Professor Walker, F.R.S.
Professor Willis, F.R.S.
I. K. Brunel, Esq., F.R.S.
Sir Baldwin Walker, K.C.B.
The President of the College of Surgeons.
Sir George Smart.

Mr. Scott Russell acted as Secretary to this Committee, Colonel Sir W. Reid, Mr. Cole, and Mr. Dilke attended on the part of the Executive Committee.

(*a*) Agricultural Implements—(Six Meetings).

Hon. Dudley Pelham, M.P. (*deceased.*)
Col. B. Challoner.
Anthony Hamond, Esq.
W. Miles, Esq., M.P.
Joseph Locke, Esq., M.P., F.R.S.
Philip Pusey, Esq., M.P., F.R.S.
Brandreth Gibbs, Esq.
H. S. Thompson, Esq.
J. V. Shelley, Esq.

Mr. Dilke attended this Committee on the part of the Executive Committee.

Section III.—Manufactures—(Five Meetings).

Rt. Hon. W. E. Gladstone, M.P.
Alderman Thompson, M.P.
Richard Cobden, Esq., M.P.
Thomas Field Gibson, Esq.
Thomas Bazley, Esq.
John Gott, Esq.
Herbert Minton, Esq.
Apsley Pellatt, Esq.
R. Redgrave, Esq., R.A.
J. R. Herbert, Esq., R.A.
H. J. Townsend, Esq.
J. Jobson Smith, Esq.
J. G. Marshall, Esq., M.P.
J. H. Vivian, Esq., M.P.
Professor Graham, F.R.S.
Professor Woodcroft.
Professor Cowper.
John Hardman, Esq.
H. T. Hope, Esq., M.P.
Sir John Guest, Bart., M.P., F.R.S.
Pascoe Grenfell, Esq., M.P.
J. D. Morries Stirling, Esq., F.R.S.E.
Sir John Boileau, Bart., F.R.S.

Sir Stafford H. Northcote acted as Secretary to this Committee, and Mr. Cole attended on the par of the Executive Committee.

Section IV.—Sculpture, Models, and the Plastic Art—(Three Meetings).

Rt. Hon. the Earl of Aberdeen, K.T., F.R.S., Pr.S.A.
Rt. Hon. Viscount Canning.
Rt. Hon. Lord Ashburton.
Sir Richard Westmacott, R.A.
Sir Charles Lock Eastlake, P.R.A., F.R.S.
Sir Charles Barry, R.A., F.R.S.
Charles Baring Wall, Esq., M.P., F.R.S.
Wm. Wyon, Esq., R.A. (*deceased.*)
Edward Hodges Baily, Esq., R.A., F.R.S.
D. Maclise, Esq., R.A.
Thomas Uwins, Esq., R.A.

Sir Stafford H. Northcote, Mr. Scott Russell, and Mr. Cole attended this Committee.

Clerks to the Royal Commission . . } H. R. Lack.
G. T. Wright.

APPENDIX No. I.

List of Local Commissioners appointed by the Royal Commissioners in different parts of the United Kingdom.

Adam, Admiral Sir C. (*Greenwich*).
Adams, J. (*Tower Hamlets*).
Adams, W. B. (*London*).
Addison, J. (*Preston*).
Allcroft, J. D. (*London*).
Annable, J. (*London*).
Ansted, Prof. D. T. (*London*).
Answorth, W. S. (*London*).
Appold, J. G. (*Westminster*).
Ashburton, Lord (*London*).
Ashead, W. (*Macclesfield*).
Asphitel, A., F.R.S. (*Tower Hamlets*).
Aston, A. (*Tower Hamlets*).
Baggallay, J. (*London*).
Baker, W. G. (*Chelsea*).
Baker, W. (*Tower Hamlets*).
Balieff, John (*Dumfries*).
Ball, T. (*Nottingham*).
Barber, W. (*London*).
Barker, J. (*Macclesfield*).
Barlow, Rev. J. (*Finsbury*).
Barnett, W. (*Macclesfield*).
Barry, Sir C. (*Westminster*).
Bascomb, W. H. (*Woolwich*).
Beddoe, W. (*London*).
Belcher, H. (*Whitby*).
Bell, Jacob (*Marylebone*).
Bell, J. (*Westminster*).
Bell, John (*Kensington*).
Benham, J. (*Marylebone*).
Bennett, W. S. (*Marylebone*).
Benson, S. (*Swansea*).
Berger, Lewis (*London*).
Besley, R. (*London*).
Bettridge, J. (*London*).
Bevington, J. B. (*Southwark*).
Biddle, D. (*Marylebone*).
Biggs, W. (*Leicester*).
Birchall, T. (*Preston*).
Bird, W. (*London*).
Birkin, R. (*Nottingham*).
Bishop, Sir H. (*Westminster*).
Black, John (*Dumfries*).
Blackwell, S. H. (*Dudley*).
Block, Samuel R. (*London*).
Blyth, J. (*Tower Hamlets*).
Bohn, H. G. (*Westminster*).
Bond, E. (*Marylebone*).
Bossey, Dr. F. (*Woolwich*).
Bowerbank, J. S. (*Finsbury*).
Brande, Professor (*London*).
Brandon, D. (*London*).
Brett, Henry (*London*).
Brettle, E. (*London*).
Brocklehurst, T. U. (*Macclesfield*).
Brodrick, R. (*Macclesfield*).
Brook, Joseph (*Huddersfield*).
Brooke, J. (*Macclesfield*).
Brown, Joseph (*Westminster*).
Brown, D. (*Macclesfield*).
Brunel, I. K. (*Westminster*).
Bucker, J. (*Macclesfield*).
Bunning, J. B. (*London*).
Burbery, T. (*London*).
Burch, J. (*Macclesfield*).
Burnell, H. H. (*Chelsea*).
Buxton, Sir E. N. (*Tower Hamlets*).
Carter, John (*Tower Hamlets*).
Cartwright, S. (*Preston*).
Casey, J. (*Tower Hamlets*).
Cattley, Rev. S. R. (*London*).
Chabot, P. (*Tower Hamlets*).
Challoner, Col. C. B. (*London*).
Christy, T. (*London*).
Chubb, C. (*London*).
Clark, W. T. (*Hammersmith*).
Clark, E., C.E. (*South London*).
Clarke, F. (*London*).
Claxton, Richard (*Tower Hamlets*).
Claxton, Robert (*Tower Hamlets*).
Claxton, W. (*Tower Hamlets*).
Clay, Sir W., M.P. (*Tower Hamlets*).
Clay, Rev. J. (*Preston*).
Clayton, W.
Cochrane, A. B., Jun. (*Dudley*).
Cockerell, C. R., R.A. (*London*).
Coffey, Æneas (*Tower Hamlets*).
Colborne, Lord (*London*).
Collard, C. L. (*London*).
Colnaghi, D. (*Westminster*).
Colquhoun, Lieut.-Col. J. N. (*Woolwich*).
Cooke, L. (*Richmond, Yorkshire*).
Cook, R. (*Marylebone*).
Copeland, Alderman W. T., M.P. (*Staffordshire*).
Corns, W. W. (*Macclesfield*).
Cory, Dr. H. (*Tower Hamlets*).
Cottam, G. (*London and Marylebone*).
Cottingham, N. J. (*South London*).
Cowper, Professor (*London and Kensington*).
Cowper, C. (*London*).
Crace, J. G. (*Westminster*).
Crawhall, Jos. (*Newcastle-on-Tyne*).
Creswick, T., R.A. (*Kensington*).
Crocker, J. (*London*).
Crump, G. (*Kidderminster*).
Currie, J. (*Tower Hamlets*).
Curwen, D. B. (*Macclesfield*).
Davies, D. (*Marylebone*).
Davies, J. (*Tower Hamlets*).
Deacon, C. (*London*).
Deane, J. (*London*).
De la Rue, T. (*London*).
De Morgan, Professor (*London*).
Dent, E. J. (*London*).
Dennis, W. (*Northampton*).
Dewar, D. (*London*).
Dickie, Thomas (*Dumfries*).
Dillwyn, L. L. (*Swansea*).
Ditchburn, T. J. (*Poplar*).
Dockray, R. B. (*London*).
Donkin, B., Jun. (*Southwark*).
Dowbiggin, T. (*Westminster*).
Downing, J. H. (*Chelsea*).
Dray, W. (*London*).
Drew, George (*Southwark*).
Drumlanrig, Viscount (*Dumfries*).
Duke, Alderman Sir J., M.P. (*London*).
Dunbar G. (*Dumfries*).
Duncan, Walter (*Dumfries*).
Dunn, Alderman T. (*Sheffield*).
East, Rev. E. (*Putney*).
Ellis, J., M.P. (*Leicester*).
Evans, D. (*London*).
Evans, J. (*London*).
Evans, W. (*Tower Hamlets*).
Evans, J. Cook (*Finsbury*).
Felkin, W. (*Nottingham*).
Felton, J. (*Tower Hamlets*).
Fergus, J., M.P. (*Dunfermline*).
Field, Joshua (*South London*).
Figgins, Vincent (*London*).
Finnis, S. (*Dover*).
Fisher, John (*London*).
Foot, Joseph (*Tower Hamlets*).

Forbes, Professor E. (*London and Finsbury*).
Foster, J. P. (*London*).
Fowler, C. (*Marylebone*).
Francis, C. L. (*London*).
Francis, G. G. (*Swansea*).
Fraser, Donald (*Marylebone*).
Fraser, J. (*Dumfries*).
Freeman, W. (*Westminster*).
Friend, R. R. (*London*).
Frodsham, C. (*London*).
Frost, J. (*Macclesfield*).
Fulton, H. H. (*Putney*).
Garrard, S. (*Westminster*).
German, J. (*Preston*).
Glaisher, James (*Greenwich*).
Godwin, G. (*Kensington and Westminster*).
Goodbehere, G. F. (*Tower Hamlets*).
Goodwin, J. (*London*).
Gore, John (*Greenwich*).
Gould, J. (*Finsbury*).
Gowen, J. R. (*Finsbury*).
Grace, H. (*Tower Hamlets*).
Graham, Peter (*Westminster and Marylebone*).
Graham, G. H. (*Woolwich*).
Graham, Professor (*London and Marylebone*).
Gray, John (*London*).
Gray, J. E. (*Finsbury*).
Grazebrook, M. (*Dudley*).
Green, Professor (*London*).
Grey, J. (*Newcastle-on-Tyne*).
Green, S. (*South London*).
Gregory, H. (*London*).
Groucock, R. (*London*).
Grundy, T. (*Northampton*).
Hackblock, W. (*Southwark*).
Haden, F. Seymour (*Chelsea*).
Hadfield, T. (*Macclesfield*).
Hagger, T. (*Northampton*).
Hall, J. Sparkes (*Marylebone*).
Hairs, G. (*London*).
Hammack, J. G. (*Tower Hamlets*).
Hanbury, R. (*Tower Hamlets*).
Hancock, J. (*Finsbury*).
Hannay, W. (*Nottingham*).
Harding, Wyndham (*South London*).
Harkness, T. (*Dumfries*).
Harris, R., M.P. (*Leicester*).
Hart, S. A., R.A. (*Marylebone*).
Haselden, W. (*Chelsea*).
Hawks, G. (*Gateshead*).
Hems, W. (*Tower Hamlets*).
Henry, Professor (*Finsbury*).
Hewlett, T. B. (*Northampton*).
Heywood, Thomas (*Preston*).
Hickson, W. (*London*).
Hill, James (*Tower Hamlets*).
Hind, J. R. (*London*).
Hollis, W. (*Northampton*).
Hooker, Sir W. J. (*London*).
Hooman, J. (*Kidderminster*).
Hope, H. T., M.P. (*Westminster*).
Hopwood, J. S. S. (*Finsbury*).
Horne, Robert (*London*).
Hornsby, R. (*Grantham*).
Hoskyns, W. C. (*Hereford*).
Houghton, G. (*Finsbury*).
Howard, J. (*Bedford*).
Hubert, S. M. (*Marylebone*).
Hulett, D. (*Finsbury*).
Humphreys, J. (*Tower Hamlets*).
Humphreys, J., Jun. (*Tower Hamlets*).
Hunt, Robert (*London*).
Hunt, J. (*Westminster*).
Ibbetson, Capt. (*London and Chelsea*).
Ince, W. (*Marylebone*).
Jacson, C. R. (*Preston*).
Jackson, J. (*Marylebone*).
Jackson, J. (*Macclesfield*).
Johnson, W. A. (*Tower Hamlets*).
Johnston, Col. T. H. (*Dumfries*).
Jones, Owen (*London and Westminster*).
Keen, G. (*London*).
Keith, D. (*London*).
Kemp, G. T. (*Tower Hamlets*).
Kightley, J. (*Northampton*).
King, G. (*Finsbury*).
Kirsop, J. (*London*).
Kitely, J. (*Kidderminster*).
Knight, G. (*London*).
Landseer, Sir E., R.A. (*Marylebone*).
Lankester, Dr. E. (*London and Westminster*).
Lapworth, A. (*Westminster*).
Lavanchy, J. R. (*Westminster*).
Lawrence, Professor (*London*).
Lawson, Sir W. (*Richmond, Yorkshire*).
Leaf, W., Jun. (*London*).
Lee, Dr. R. (*Finsbury*).
Le Hunte, G. (*Wexford*).
Leighton, Miles (*Dumfries*).
Lemon, Sir C., Bart., M.P. (*Falmouth*
Leny, J. Mac Alpine (*Dumfries*).
Lewis, Stephen (*Westminster*).
Lewis, W. (*Wexford*).
Liddiard, W. (*London*).
Lincoln, H. J. (*Finsbury*).
Lindley, Dr. (*London, Chelsea, and Westminster*).
Lloyd, J. P. (*Northampton*).
Locke, Joseph (*London*).
Lunn, Henry (*Finsbury*).
Mac Alpin, J. (*London*).
Mace, W. (*Tower Hamlets*).
Mackerlie, Captain (*London*).
Mair, J. (*London*).
Mann, J. H. (*Westminster*).
Mann, Allan (*Macclesfield*).
Mare, C. J. (*Tower Hamlets*).
Martin, T. (*Southwark*).
Masterman, J. (*Tower Hamlets*).
Mandslay, H. (*South London*).
Maudslay, T. (*London*).
Maxwell, J. (*Dumfries*).
May, C. (*London*).
Mayhew, W. (*Southwark*).
Mears, George (*Tower Hamlets*).
Mechi, J. J. (*London*).
Michael, M. J. (*Swansea*).
Miller, Joseph (*Tower Hamlets*).
Miller, T. J. (*Westminster*).
Minton, Herbert (*Staffordshire*).
Moberly, W. (*Whitby*).
Moggridge, M. (*Swansea*).
Mordan, A. (*London*).
Moreland, R. (*Finsbury*).
Montefiore, Sir M. (*London*).
Morgan, Captain E., R.A. (*Swansea*).
Moore, J. (*Chelsea*).
Morley, S. (*London*).
Mulliner, F. (*Northampton*).
Mundell, Peter (*Dumfries*).
Mushet, R. (*Tower Hamlets*).
Napier, F. (*Tower Hamlets*).
Napier, J. M. (*South London*).
Newton, W. E. (*Finsbury*).
Newall, R. S. (*Newcastle-on-Tyne*).
Neville, W. (*London*).
Nicholay, J. A. (*Marylebone*).
Nicholson, W. (*Dumfries*).
Nicoll, D. (*London*).
Northampton, Marquis of (*London*), (*deceased*).
Nunn, John (*Finsbury*).

Obbard, R. (*London*).
Offor, George (*Tower Hamlets*).
Oram, S. (*Finsbury*).
Overend, W. (*Sheffield*).
Owen, Professor (*London*).
Pace, J. (*Bury St. Edmunds*).
Palgrave, C. F. (*Bedford*).
Palmer, W. (*London, Tower Hamlets, and Finsbury*).
Parker, F. (*Northampton*).
Parr, Rev. J. O. (*Preston*).
Pattinson, H. L. (*Newcastle-on-Tyne*).
Paul, Dr. (*Southwark*).
Pearce, J. (*Westminster*).
Pearce, W. (*Poplar*).
Pellatt, A. (*London*).
Penn, J. (*Greenwich*).
Pereira, Dr. J. (*London and Marylebone*).
Phillips, B. S. (*London*).
Phillips, J. A. (*London*).
Phipps, J. (*Northampton*).
Pontifex, J. E. (*London*).
Porter, R. (*London*).
Potter, R. (*Marylebone*).
Price, Sir R., Bart., M.P. (*Hereford*).
Prichard, W. (*Southwark*).
Rands, G. (*Northampton*).
Ravenhill, R. (*Tower Hamlets*).
Redpath, C. J. (*Poplar*).
Redwood, T. (*London*).
Reed, C. (*London*).
Rendel, J. M. (*London*).
Richards, Eli (*Southwark*).
Richards, J. (*Tower Hamlets*).
Richmond, Yorkshire, Mayor of.
Ridge, Dr. (*Putney*).
Ridley, S., Jun. (*London*).
Ridgway, J. (*Staffordshire*).
Roberts, D. (*Marylebone*).
Robinson, J. (*London*).
Robinson, R. A. (*Poplar*).
Robson, Robert (*Richmond, Yorkshire*).
Rofe, J. (*Preston*).
Rogers, W. G. (*Westminster*).
Ross, Andrew (*London*).
Routledge, G. F. (*London*).
Royle, Dr. (*London*).
Rushton, T. L. (*Bolton*).
Ryle, W. (*Macclesfield*).
Salmon, W. (*Bury St. Edmunds*).
Salomons, Alderman D., M.P. (*London*)
Salomons, A. (*London*).
Sandland, W. (*Finsbury*).
Saunders, T. (*Finsbury*).
Sayer, E. (*Westminster*).
Scoles, J. J. (*Hammersmith*).
Scott, J. (*London*).
Scott, J. (*Dumfries*).
Seward, J. (*Tower Hamlets*).
Sewell, T. R. (*Nottingham*).
Sherwin, J. (*Tower Hamlets*).
Shoolbridge, T. (*London*).
Sidney, Alderman T., M.P. (*London*).
Simpson, T. B. (*Southwark*).
Simpson, W. B. (*Westminster*).
Simpson, T. (*Dumfries*).
Smart, Sir G. (*Marylebone*).
Smedley, F. (*Westminster*).
Smee, W. (*London*).
Smith, Sir F. (*London*).
Smith, J. (*Macclesfield*).
Smith, J. B., M.P. (*Dunfermline*).
Smith, R. (*Dudley*).
Smith, W. (*Newcastle-on-Tyne*).
Smyth, Captain W. H. (*Chelsea*).
Snell, E. (*Westminster*).
Solly, Professor E. (*London*).
Soper, H. (*Tower Hamlets*).
Sparrow, R. (*Wexford*).
Spicer, H. (*London*).
Spiller, J. R. (*Northampton*).
Spurgin, Dr. J. (*Finsbury*).
Stevens, G. (*Macclesfield*).
Stevenson, John (*Preston*).
Stockburn, H. L. (*Northampton*).
Stroud, Thomas (*Westminster*).
Swaine, E. (*City of London*).
Swaisland, C. (*London*).
Sylvester, J. (*London*).
Swinburne, R. W. (*Newcastle-on-Tyne*).
Swindells, Martin (*Macclesfield*).
Taplin, R. (*Woolwich*).
Taylor, G. (*Finsbury*).
Taylor, Professor (*London*).
Taylor, Hugh (*Newcastle-on-Tyne*).
Teape, H. (*Tower Hamlets*).
Tebbutt, C. (*Tower Hamlets*).
Tennant, Professor (*London and Westminster*)
Thornthwaite, W. H. (*London*).
Threshie, R. (*Dumfries*).
Tite, W. (*London*).
Tucker, H. (*London*).
Tylden, Lieut.-Col. (*Woolwich*).
Tyssen, J. R. D. (*Tower Hamlets*).
Uzielli, Mathew (*London*).
Vanner, J. (*Tower Hamlets*).
Vivian, H. H. (*Swansea*).
Vulliamy, B. L. (*London*).
Vyse, H. (*London*).
Wakefield, J. C. (*London*).
Wall, C. B. (*Westminster*).
Walton, W. H. (*Macclesfield*).
Warwick, C. (*London*).
Webb, J. (*Westminster*).
Wedgwood, J. (*Tower Hamlets*).
Weekes, H. (*London*).
Wegg-Prosser, F. R. (*Hereford*).
White, J. B. (*Westminster*).
White, T. (*Finsbury*).
White, W. (*London*).
Whitehead, John (*Preston*).
Whiting, F. (*Tower Hamlets*).
Whitworth, H. B. (*Northampton*).
Wicksteed, T. (*Tower Hamlets*).
Williams, W. (*Bedford*).
Williams, W. (*Northampton*).
Wilkinson, H. (*Westminster*).
Wilkinson, W. A. (*London*).
Wilks, Jonas (*London*).
Wilson, H. (*Bury St. Edmunds*).
Wilson, J. (*Grantham*).
Wilson, A. (*London*).
Wilson, Erasmus (*Marylebone*).
Wilson, J. G. (*Chelsea*).
Windus, T. (*Tower Hamlets*).
Wire, Alderman D. W. (*London*).
Woodington, W. F. (*South London*).
Wyatt, M. D. (*London*).
Wyatt, T. H. (*London and Finsbury*).
Wyatt, James (*Tower Hamlets*).
Wyon, W. (*London and Westminster*).
Yates, W. T. (*Tower Hamlets*).
Younge, R. (*Sheffield*).
Zetland, Earl of (*Richmond, Yorkshire*).

JAMES WILBUD.

APPENDIX No. II.

DECISIONS of HER MAJESTY'S COMMISSIONERS, and REGULATIONS of the EXECUTIVE COMMITTEE.

[In carrying on the business of the undertaking, and the vast correspondence which arose out of it, the Executive Committee were saved much time, labour, and misunderstanding by having a printed code of rules or principles to which each person could be referred.

The best foundation for this were the decisions of the Royal Commissioners laid down at the commencement of their operations. They were printed in the form of a small pamphlet, and in successive editions, those additional decisions were added which the progress of the undertaking, and the various and often unexpected questions which arose, rendered necessary. The most important of the regulations issued by the Executive Committee on special subjects were also, from time to time, incorporated. They are now submitted, with a few unimportant alterations and some additions made after the last publication, in the form in which they were issued to the public, without any attempt to codify them or arrange them in that systematic order which would be desirable, and indeed necessary, if the arrangements to which the regulations alluded were of a more enduring character, or were to be repeated, but which order was impossible in issuing them, from time to time, as they were decided on.

A few remarks by Mr. Cole, Mr. Dilke, and Captain Owen (General Superintendent of the Building), upon the working of some of the decisions and regulations, have been appended in smaller type and in brackets, with the hope that the experience derived from the present Exhibition may be of use should another take place at a future time.]

DECISIONS,—GENERAL CONDITIONS.

1. The Commissioners have fixed upon the 1st day of May, 1851, for OPENING THE EXHIBITION.

2. Her Majesty has been graciously pleased to grant a site for the Exhibition on the south side of Hyde Park, lying between the Kensington Drive and the Ride commonly called Rotten Row.

[As other sites were originally suggested, it may be well to say that the one chosen proved exceedingly good, the access being so very convenient.]

3. The Commissioners will be prepared to receive all articles which may be sent to them, with the sanction of the proper Foreign, Colonial, or Local Committee, on or after the 1st of January, 1851, and will continue so to receive goods until the 1st of March inclusive, after which day no further goods will be received.

[Reference to a table in Appendix XIII. (p. 75) will show in what space of time the goods were actually received; in fact the building was not ready for their reception until long after the 1st of January. Experience, therefore, has shown that an allowance of two months for the admission and arrangement of heavy articles would have proved sufficient (brick foundations when required being previously prepared), whilst for the lighter goods, especially woven fabrics, precious metals, and philosophical instruments, a fortnight before the opening would have been enough, if the glass cases and fittings were ready. A shorter period still would have been sufficient for articles brought in by hand.

4. Exhibitors will be required to deliver their objects, at their own charge and risk, at the Building in Hyde Park, Kensington Road.

5. The Building will be provided to the Exhibitors free from rent.

6. The Building generally will be of one story only.

[A larger space than was originally contemplated being found requisite, the Galleries were increased, so that in the building as opened to the public they furnished about one-fourth of the space, or 240,000 square feet. In the Galleries the centre was devoted to the exhibition of the goods, and two passages for visitors were reserved, each six feet wide; these latter would have been more convenient if the one looking into the Nave had been seven feet wide.]

7. The productions of all nations will be admitted.

9. Any Manufacturer exhibiting articles which can properly be placed together according to the classification already announced, will be at liberty to arrange such articles in his own way; and his arrangements, if compatible with the convenience of other Exhibitors and of the public, will not be disturbed. In like manner, if it is wished to exhibit together the productions of a particular town or district, all such productions, if they can fairly be said to be of the same sort, will be admitted together. The decision whether they are so admissible or not, must of course rest in each case with the discretion of the Commissioners.

10. Where it is desired to exhibit processes of manufacture, a sufficient number of articles,

however dissimilar, will be admitted for the purpose of illustrating the process; but they must not exceed what may be actually required.

11. In all cases where the productions of an individual are exhibited together, his wishes, with regard to the treatment of them, will be complied with as far as possible; but should they be of a nature to involve expense, the Commissioners cannot undertake to meet that expense out of their funds, but must call upon the Exhibitor to defray it himself. GLASS CASES, FRAMES and STANDS of peculiar construction, and similar contrivances for the display or protection of the goods exhibited must in like manner be provided by the person requiring them at his own cost.

[It would, perhaps, have saved some trouble if rough counters and at least wall-space had been provided uniformly by the Commissioners, as indeed it was found necessary to do on the Foreign side.]

12. Exhibitors must be at the CHARGE OF INSURING THEIR OWN GOODS, should they desire this security. Every precaution will be taken to prevent fire, and to extinguish it, should it unfortunately occur, but the Commissioners cannot be responsible for losses which may be occasioned by this, or any other accident whatever.

13. The Commissioners are prepared to take the greatest care in their power of all objects sent; but they are not prepared to incur a degree of responsibility unusual with regard to public Exhibitions. For this reason it has been already stated that Exhibitors must be at the charge of insuring their own goods, and that the Commissioners cannot be responsible for losses which may be occasioned by fire, or any other accident. They will spare no pains in making such POLICE and other arrangements as may appear adequate for the protection of the Exhibition, and the security of the articles exhibited. They will, of course, give all the aid in their power for the legal prosecution of all persons guilty of robbery or wilful injury of any of the articles in the Exhibition, should such unfortunately occur in spite of the precautions which will be taken.

[The words 'or damage of any kind' ought to have been inserted after losses, but still the successful operation of this rule in leaving the responsibility for security to rest with the exhibitors themselves, was shown by the small amount of losses which actually took place.]

14. Should any Exhibitor desire to EMPLOY A SERVANT of his own to preserve or keep in order the articles he exhibits, or to explain them to visitors, he may do so after obtaining permission from the Commissioners. Such persons, however, will in all cases be forbidden to invite visitors to purchase the goods of their employers, the Exhibition being intended for the purpose of display only, and not for those of sale; any violation of this or any other rule must lead to their exclusion from the Building.

[This permission was extensively used. On the British side above 1,750 attendant's cards were issued. The use of the word "servant," was found in practice, objectionable, "assistant" and "agent" were therefore substituted. It might have been practicable to have admitted all Exhibitors, if greater strictness had been used in the admission of unimportant contributions, such as Berlin-wool work, patch-work, tapestry, and models of little value. Females were allowed to act as attendants.]

15*a*. Her Majesty's Commissioners, being desirous of affording every facility to those persons who may wish to exhibit Machines, or trains of Machinery in motion, have resolved to allow such Machinery to be managed and worked, as far as practicable, under the superintendence of the owners, and by their own men. The Commissioners will also find STEAM not exceeding 30 lbs. per inch, gratuitously to the Exhibitors, and convey it in clothed pipes to such parts of the building as require steam power. Parties sending Machines, or articles requiring to be driven by steam, should send with the same a small portable Steam-Engine, to which a steam-pipe can be laid on. The above will apply to all Engines from one-horse power to six horses; beyond which power it is presumed no single branch of manufacture or article will require steam power. As regards Machines too small to require an independent portable Engine, arrangements will be made to place them in groups to be exhibited in communication with some Steam-Engine, also sent for exhibition, in Motion. Exhibitors proposing to exhibit portable Steam-Engines should understand that their Engines may be employed for driving other Machinery, unless the owners of the Steam-Engines object to such use.

[The proposal to have small portable engines sent with the various machines was scarcely attended to at all, and the consequence was that many exhibitors of machines ran great risks of not getting power suitable for them.]

15*b*. Her Majesty's Commissioners have made ARRANGEMENTS TO SUPPLY WATER at a high pressure gratuitously to Exhibitors, who will have the privilege of adapting it to the working of their machinery, &c.

[Water, which was provided at a high pressure, was not used for its pressure alone to drive machines in any case, though indispensable for its other uses.]

16. PRICES ARE NOT TO BE AFFIXED to the articles exhibited, although the articles may be marked as shown for economy of production. But as the cost at which articles can be produced will, in some cases, enter into the question of the distribution of rewards, the Commissioners, or the persons intrusted with the adjudication of the rewards, may have to make inquiries, and possibly to take evidence, upon the subject; still they do not consider it expedient to affix a note of the price to the articles displayed. When the Exhibitor

considers the merit of his article to consist in its cheapness, and founds a claim on this ground, he must state the price in the invoice sent to the Commissioners.

17. Nothing is suitable for the Exhibition, except such results of human industry as are capable of being preserved without injury during many months.

18. No space will be provided for cattle, or for shrubs or flowers.

[It was found desirable, for the sake of decoration, to receive a limited quantity of flowers and ornamental shrubs and trees, but they were not shown as competing for prizes.]

19. All Spirits, Wines, and Fermented Liquors, unless derived from unusual sources, are inadmissible, except in special cases, and under special restrictions; and when Oils, Spirits, &c., are exhibited, to prevent accidents, they must be shown in well-secured glass vessels.

[The words 'unusual sources' led to confusion, foreigners assuming that it might be read as 'unusual places,' and a considerable number of samples were in consequence sent to this country.]

20. All highly-inflammable articles, such as Gunpowder, Detonating Powder, Lucifer Matches, &c., and all Live Stock, and articles perishable within the duration of the Exhibition, are inadmissible, unless specially excepted.

[Cheese and butter were sent to the Executive Committee from various places, and should therefore have been named among those things which would not keep the length of time requisite, and permission should have been given for the introduction of copper caps, as made before insertion of the detonating powder, and also of lucifer matches with coloured or artificial tops.]

21. Packing-cases in which articles are brought to the Building must be removed at the cost of the Agent or Exhibitor, as soon as the goods are examined and deposited in charge of the Commissioners. (*See* 99*a*.)

PROVISIONAL REGISTRATION OF DESIGNS.

22. Her Majesty's Commissioners having communicated with the several Departments of Her Majesty's Government, are enabled to announce that arrangements have been made to facilitate the Registration of Designs proposed for exhibition, with the view of protecting them from Piracy.

[The effect of these rules was to cause 259 registrations to be made, and 691 claims for patents to be registered. See Appendix XXII.]

Designs applicable to the following classes of Articles of Manufacture or Substances may be the subjects of Provisional Registration:—

Original Designs for Ornamenting—*Articles* composed wholly or chiefly of *Metal*, of *Wood*, of *Glass*, of *Earthenware*, *Ivory*, *Bone*, *Papier Maché*, and *other solid* substances. *Paper-Hangings*. *Carpets*, *Floor-cloths*, and *Oil-cloths*. *Shawls* (*patterns printed and not printed*). *Yarn*, *Thread*, or *Warp* (*printed*). *Woven Fabrics* (*patterns printed and patterns not printed*). *Lace* and *all other Articles*.

New and Original Designs for the Shape or Configuration, either of the whole or of part of any Article of Manufacture, such new shape or configuration *having reference to some purpose of utility*, whether such Articles be made in Metal or any other substance.

The Provisional Registration lasts for 12 months from the date of Registration, and may be extended for a further period of six months, by order of the Board of Trade.

The necessary Forms and Conditions having been observed, the right of the Proprietor of the Design is protected from Piracy by a Penalty of from 5*l.* to 30*l.* for each offence, each individual illegal publication or sale of a Design constituting a separate offence. The Penalty may be recovered by the aggrieved Party, either by action in the Superior Courts, or by a summary proceeding before two magistrates.

Until Articles for Exhibition can be received in the Building in Hyde Park, parties desiring to register a Design applicable to any Article as aforesaid must apply at the *Designs Office, No. 4. Somerset-place, Somerset House*, between the hours of 10 and 4. Designs are registered from 11 to 3 for a Fee of 1*s.* in respect of Ornamental Designs, and of 10*s.* in respect of the Designs for Articles of Utility. When the Designs so registered have been certified as having been deposited in the Building of the Exhibition, such Fees will be returned.

On and after the 1st February, 1850, instead of proceeding to the Designs Office in Somerset House, Exhibitors will be enabled to effect the Registration at the Building of the Exhibition in Hyde Park, without payment of any Fees whatever.

In order to effect the Registration, both before and after the period when Articles can be received in the Building, three exactly similar Copies or Drawings of the Designs or *actual Specimens of manufacture*, as in woven Fabrics, must be prepared according to certain Rules.

Copies of these Rules may be obtained at the Designs Office, 4, Somerset-place, Somerset House, from 10 to 4, and at the Offices of the Executive Committee, from 10 to 5. The most important of these are as follows:—

ORNAMENTAL DESIGNS.

Persons proposing to Register a Design for Ornamenting an Article of Manufacture, must bring or send to the Designs Office:—

1. **THREE EXACTLY SIMILAR *Copies*, *Drawings*, (or *tracings*), or *Prints* thereof.**
2. **THE NAME AND ADDRESS of the Proprietor or Proprietors, or the Title of the Firm under which he or they may be trading, together with their place of Abode, or place of carrying on Business, *distinctly written or printed*.**

The aforesaid *Copies* may consist of portions of the Manufactured Articles (*except Carpets, Oil-Cloths and Woollen Shawls*), when such can conveniently be done (as in the case of *Paper Hangings, Calico Prints, &c.*), which as well as the *Drawings* or *Tracings* (not in Pencil) or *Prints* of the Design, furnished when the Article is of such a nature as not to admit of being pasted in a book, *must*, whether coloured or not, be *facsimiles of each other*.

Should Paper Hangings or Furnitures exceed 42 inches in length, by 23 inches in breadth, Drawings will be required, but they must not exceed these dimensions.

NOTE.—These Copies, Drawings, (or tracings), or Prints, must consist of the entire Design, without any addition or variation whatever, and no description will be admitted.

DESIGNS FOR THE PURPOSES OF UTILITY.

Persons proposing to Register a Design for purposes of utility must bring or send to the Designs Office the following particulars:—

1st. *The Title* of the Design.

2nd. *Three exactly similar* Drawings or Prints thereof, made on a proper geometric scale, marked with letters, figures or colours to be referred to as hereinafter mentioned.

3rd. *The Name and Address* of the Proprietor or Proprietors, or the Title of the Firm under which he or they may be trading, together with their Place of Abode, or Place of carrying on Business, *distinctly Written or Printed*.

4th. *Statement* of the purpose of utility to which the shape or configuration of the new parts of such Design have reference.

5th. *Description* to render the same intelligible, distinguishing the several parts of the Design by reference to the letters, figures, or colours aforesaid.

NOTE.—No description of the parts of the drawings which are old will be admitted, except such as may be absolutely necessary to render the purpose of the new parts intelligible.

6th. *A short and distinct Statement* of such part or parts (if any) as shall not be new or original which may be in one of the forms following:—

The parts of this Design which are not new or original as regards the shape or configuration thereof, are all the parts except those marked A, B, C (&c.); or coloured (blue, green, &c.)

The parts of this Design which are not new or original, as regards the shape or configuration thereof, are all the parts taken separately.

But the parts (A and B) or coloured (blue, &c.), as here combined, form a new design.

NOTE.—The above particulars must be given in the above order under their several heads, and in distinct and separate paragraphs, and each must be strictly confined to what is above required to be contained in each.

Each Drawing or Print, together with the whole of the other Particulars, must be drawn, written, or printed upon a separate sheet of paper or parchment, only one side of which must be drawn, written, or printed upon. Such sheets must not exceed in size 24 inches by 15 inches, and on the same side as these particulars there *must be left two blank spaces*, of the size of 6 inches by 4 inches each, for the Certificates of Registration.

THE SUBSCRIPTIONS—MANAGEMENT OF THE FUNDS.

31. Her Majesty's Commissioners having undertaken the *absolute* control over the expenditure of all money that may come into the hands of their Treasurers, have made arrangements for auditing accounts, and insuring the strictest economy.

32. The scale upon which this important undertaking will be conducted, must depend entirely on the amount of pecuniary support which it shall receive from the public. Her Majesty's Commissioners appeal with confidence to all classes of the community, to enable them to make such liberal arrangements as will insure the success of this undertaking, in a manner worthy of the character and position of this country, and of the invitation which has been given to the other nations of the world to compete with us in a spirit of generous and friendly emulation.

33. The amount of the funds which the public may place at the disposal of the Commissioners must determine the extent of accommodation which can be provided for the Exhibition.

34. Her Majesty's Commissioners hope that the funds to be placed at their disposal by voluntary contributions may be such as to enable them so to regulate the amount to be paid for entrance, that all classes may be enabled to visit the Exhibition.

35. Should any surplus remain, after giving every facility to the Exhibitors and increasing the privileges of the Public as spectators, Her Majesty's Commissioners intend to apply the same to purposes strictly in connexion with the ends of the Exhibition, or for the establishment of similar Exhibitions for the future.

36. Her Majesty's Commissioners are desirous that there should be complete local organi-

zation, and that the Local Committees, wherever formed, should themselves collect the Subscriptions within their own districts.

37. The Local Committees should advertise all Subscriptions they receive, and defray all local expenses, paying such commissions for collection as they may think necessary.

[The proportions which were reserved by each Committee may be seen on reference to Appendix XL.]

38. All Subscriptions must be absolute and definite.

39. Her Majesty's Commissioners think that the same complete system of organization should be extended as much as possible to the British Colonies.

40. Subscriptions should (without delay) be paid to the Treasurers of Local Committees, and by them transferred to the General Fund at the Bank of England, in the names of A. K. Barclay, Esq., W. Cotton, Esq., Sir J. W. Lubbock, Bart., S. M. Peto, Esq., M.P., and Baron Lionel de Rothschild, M.P.

41, 42, 43, 44, 45.

[The Decisions of Her Majesty's Commissioners being published from time to time, it was thought advisable to leave figures vacant in the first publication, so that paragraphs migh be inserted without disturbing the numbers. This will account for several numbers which have no decision attached.]

LOCAL COMMITTEES—THEIR FUNCTIONS, &c.

46. The functions of the Local Committees chiefly consist in the recommendation of Local Commissioners to represent the interests of their localities—in encouraging the production of suitable objects for Exhibition—in affording information in the locality relative to the Exhibition—in the organization and collection of Subscriptions—and in facilitating the means of visiting the Exhibition.

[The course of proceedings adopted in Local Committees may be judged of by referring to the returns from Birmingham, Manchester, and Marylebone. Appendix VII.]

47. However large the Building may be—the quantity of articles sent for Exhibition may exceed any amount of space that can be provided;—Her Majesty's Commissioners consequently reserve to themselves ample powers of rejection and selection. But it is the wish of the Commissioners to limit, as far as possible, the necessity for the exercise of the powers of rejection and selection of objects intended for exhibition thus reserved to them, and for that purpose, to call to their assistance the local knowledge and discretion of the several Local Committees. They consider that it would be desirable that the Local Committees should, without delay, enter into personal communication with those persons resident within their district, who are likely to be Exhibitors; and that they should ascertain the character and number of the objects which it would be their wish to send to the Exhibition. They are desirous of receiving, at as early a period as possible, the general result of the inquiries instituted by the Committees, and a general estimate of the articles likely to be supplied, which, in the opinion of the Committee, may be fitly exhibited, supposing there were ample space.

[The amount of space demanded and that actually allotted by the Executive Committee may be seen in Appendix XL.]

48. Before a final determination be adopted in respect to the selection of objects to be transmitted, the Commissioners hope to be enabled to depute one or two well-qualified persons to visit the several districts from which articles of the same general character are likely to be supplied; and enter into personal communication with each of the Local Committees, for the purpose of giving them information on any point on which they may be enabled to afford it; and for the purpose also of enabling the Commissioners to judge from the collective reports of the persons employed by them, in what manner the power of selection and rejection reserved to the Commissioners can be ultimately exercised most consistently with justice to all parties, and with the advantageous application of the space for the purpose of exhibition, which they will have at their command.

[It was found that the more the Local Committees were left to their own resources and enjoyed freedom of action, the more successful was the result.]

49. The first object, however, of the Commissioners, is to receive from the Local Committees such general information as to the character of the objects to be supplied, and such general estimate of their number, and the room they would occupy, as may enable the Commissioners to form some judgment as to the probable demands upon the space applicable to the purposes of the Exhibition.

50. The subjoined printed form (*see* 54) has been prepared, and may be obtained by intending Exhibitors of the nearest Local Committee.

51. FORM of RETURN to be made by LOCAL COMMITTEES to HER MAJESTY'S COMMISSIONERS on or before the 31st of October, addressed to M. D. WYATT, Esq.

CLASS OF ARTICLES. [NOTE.—Please to enumerate the Classes, such as , &c. &c. &c., giving the details applicable to each.]	Number of Exhibitors.	Total of superficial Feet.			Average Height likely to be required in each Surface.	Average quantity of Surface likely to be required for each Exhibitor.	Remarks.
		Floor Surface.	Table or Counter Surface.	Wall Surface.			

52. It is not intended to require of Exhibitors that they should of necessity be Subscribers.

53. All persons desirous of contributing Articles for the Exhibition of 1851, must give immediate notice of such intention, and transmit a general description, in the form annexed, of the nature of each Article, and the space which will be required for the exhibition of it, to the Secretary of the ——— (*nearest*) Local Committee.

54. This RETURN is to be filled up by intending Exhibitors, and addressed to Hon. Secretary to the Local Committee for the Town of

	Name.	Address.	Nature of Manufacture.	Area required in superficial feet.			Average Height likely to be required.	Remarks.	
				Floor.	Table or Counter	Wall.			

[In this form of return, as well as many others, it would have eventually saved trouble if the length' breadth, and height of the article or articles to be exhibited, or the case or stall to contain them, had been distinctly specified, as near as could be judged at the date of the return; it would have afterwards facilitated the arrangements in detail, and would have prevented some mistakes. Twelve feet of counter and wall was commonly interpreted as twelve feet lineal, and many exhibitors demanded not only the superficial counter space they required, but the floor on which that counter was to stand.]

55. A Counterpart of this form should be retained by intending Exhibitors.

56. A register of the names, and the particulars thus sent, will be made by the Local Committees, and must be transmitted by them to M. D. Wyatt, Esq., ON OR BEFORE THE 31st OF OCTOBER (*see* 51).

57. It will not be necessary in the first instance to exhibit to the Local Committee either specimens of the Articles to be sent, or to give a minute specification of them.

58. The first point to be ascertained is the probable number of Exhibitors, and the space that will be probably required for the Articles they may send. The Local Committee will hereafter determine on the principle on which the selection of Articles for transmission to London shall be made; giving to the Contributors full public notice of that principle, and of the mode in which it is to be carried into execution.

59. It is difficult to decide on this important matter, without having some general notion of the space which it is proposed by Her Majesty's Commissioners to allot to each particular District. It will be the earnest desire of the Local Committee to make those arrangements in respect to the principle and details of selection which shall be most consistent with strict justice to the Contributors, and which shall, as far as possible, prevent any party from being prejudiced by the premature disclosure of any particulars connected with the preparation or manufacture of the Articles which he may propose to exhibit.

60. Intending Exhibitors should bear in mind that it will be necessary for them to obtain the certificate of the nearest Local Committee of its approval of the articles sent for Exhibition before they can be received for examination by the Commissioners in the Building.

REJECTION AND SELECTION OF ARTICLES BY LOCAL COMMITTEES OF THE UNITED KINGDOM.

60*a*. The Commissioners have decided further that they will not interfere with the discretion of the Local Committees, in their allotment of space to individual exhibitors.

60*b*. The Commissioners have now to announce that the whole of the demands for FLOOR or COUNTER space in the Building which the Local Committees of the United Kingdom have returned exceed 417,000 superficial feet. These demands exceed the amount of available space for the United Kingdom by about 210,000 superficial feet. The amount of wall space demanded is only 200,000 superficial feet, which is very much below that available.

60c. The number of persons proposing to exhibit is upwards of 8,200.

[Of the 8,213 original applicants, space was allotted in the first instance to 6,924 by the Local Committees; of the latter number about 1,200 never exhibited anything, and about 600 were admitted either at later request of the Local and Metropolitan Committees, or as special cases, on the authority of the Executive Committee.]

60*d*. The Commissioners have proceeded to adjust the proportions of FLOOR or COUNTER space which it appeared desirable to them that the Four Sections of the Exhibition should occupy in the Building. The amount of wall space yet available being very large, a considerable proportion can be applied in favour of those Exhibitors who are able to substitute vertical for floor or counter space, in respect of articles which otherwise could not be received for want of room. The Local Committees are requested to make this known, and to apply for this additional space whenever they consider the articles worthy of admission. The term "*Wall*," not only includes vertical or hanging space, but also affords the means for the erection of upright cases.

[The term *wall space* was the cause of much misunderstanding, which would have, in a great measure, been saved by the means pointed out in a note on Decision 54. Upright cases fixed on the wall, of course practically occupied a certain portion of horizontal space, as the space under them was rarely available for other Exhibitors.]

60*e*. Upon the average, furnished by the whole of the United Kingdom, and obtained by dividing the total amount of space apportioned to each section by the number of Exhibitors in that Section, the Commissioners, as a general rule, have allotted to each Local Committee an amount of space in each Section, in proportion to the number of Exhibitors which have been returned by each Committee.

60*f*. The Commissioners are desirous that each Local Committee, in allotting space to the individual Exhibitors, should, as far as possible, maintain the proportions of the Four Sections allotted to it, so that in the ultimate arrangement of the whole Exhibition, the space which each Section may occupy, should agree as closely as may be with the spaces fixed by the Commissioners.

60*g*. As in many cases the amount of space demanded by a Local Committee has been inevitably reduced, and as it is essential in *every* case that only those Articles which do honour to our industrial skill as a nation should be admitted, it becomes indispensable that some selection should be made, and it is most necessary that this should be done in such a manner as to represent the industry of the district with perfect fairness, and do the fullest credit to its industrial position.

60*h*. The Local Committees will perceive that it would be quite impossible on the part of the Commissioners to send a sufficient number of persons possessed of technical knowledge to decide on the merits of the varied articles of the manufacturing districts. The Commissioners therefore rely on the Local Committees for the proper distribution of the aggregate space allotted to them. The Local Committees will readily understand from Decisions 103 to 107, that the Commissioners recognize merit in whatever form it may present itself, and that they are prepared to look for it in the cheapest fabric, if distinguished as being superior in its class, as in the highest forms of artistic excellence. The success of the Exhibition, and the appreciation of our Industrial products by the world, will to a great extent depend upon the manner in which the Committees distribute the space allotted to them. Articles possessing none of the peculiar merits already indicated would be detrimental to this manifestation of industrial skill. In the hands of the Local Committees, therefore, the Commissioners leave with perfect confidence the credit of their respective districts.

60*i*. The Commissioners have caused copies of each application for space to be transmitted to the respective Local Committees for revision and correction where necessary. The Local Committees will proceed to give the allotments of space, and to examine the applications with great deliberation. Should the Local Committees feel authorized in allocating space to articles, which either are not yet completed, or which they have not personally examined, they will do so only with a full confidence in the character and manufacturing skill of the intending producer, and with the entire conviction that the article when finished will be peculiarly worthy of exhibition. The Commissioners rely that all inquiries will have been duly made, and that the Local Committees will be fully satisfied before they give their vouchers for the admission of the articles; these vouchers will be considered as tantamount to *their unqualified approbation of the Articles*, and will entitle the Articles to admission to the Building. Should the Committee desire to call in the aid of competent persons, not being members, they are of course at liberty to do so.

60*j*. Although the Commissioners have made definite allotments of space to the Local Committees, it will still rest absolutely with the discretion of each to determine whether they will admit the present applicants; and whether they will reduce or increase the space demanded by each applicant. In no case must a Local Committee *increase* the amount of the *total* allotted to it by the Commissioners. The Local Committees have full power, *without any further application to the Commissioners*, should they be dissatisfied on further investigation with the character or excellence of the works already returned by them to the Commissioners, to apportion any part of the space allotted to them to other Exhibitors than those who may have sent in demands before the 31st of October.

60*k*. In order to provide for the proper reception of articles in the Building as soon as they shall arrive, it is obviously necessary that the places for large groups of articles shall be fixed before any are admitted, and so far as is consistent with this necessity, it has been the desire of the Commissioners to give the utmost latitude of time to enable the Local Committees to make due inquiries into the fitness of articles for Exhibition; and the Commissioners have therefore appointed so late a day as the 10th December, as the LAST on which vouchers can possibly be received; so that there will be an interval of some time during which it will be in the power of the Local Committees, to whom space is allotted, to consider the best distribution of it in every way. At the same time, as soon as a Local Committee has positively filled up or cancelled any application for space, the Commissioners request that it may be immediately returned to them, and not delayed until the 10th of December.

60*l*. The Commissioners do not propose in any case to inquire into any differences of opinion, should any arise, respecting the *amount* of space which the Local Committees may allot to individual exhibitors; and the Commissioners only propose to exercise the powers of rejection and selection, which they have reserved to themselves, to the extent of seeing that no articles contrary to the Decisions have been inadvertently passed by any Local Committee At the same time, if any productions shall have been rejected by any Local Committee, and the proprietor of them shall desire to appeal against the decision, it will be competent for him to address the Commissioners THROUGH THE LOCAL COMMITTEE, who will forward the appeal, with their own observations, to the Commissioners; and the Commissioners, upon consideration of the circumstances, will then decide whether the rejected articles may be examined under appeal, at the expense of the appellant.

[The appeals were singularly few.]

60*m*. With the view of providing against the exhibition of duplicate articles of manufacture, the Commissioners, in cases where duplicates may have been admitted by *different* Local Committees, will call upon the Exhibitors of such duplicates to produce a certificate from the actual makers, stating which of the Exhibitors has arranged with the maker to be proprietor of the absolute and exclusive right of sale and distribution of such article, and the preference of admission will be given to that Exhibitor who is the sole proprietor. Perhaps the Local Committees may think it advisable to adopt a similar regulation. The Local Committees will doubtless be sensible of the importance of taking care not to admit either unnecessary duplicates of any Machine or Article, or Machines or Articles having only very unimportant differences, especially when such Articles are large.

[This was a question which the Commissioners were never called upon to decide.]

REGULATIONS AS TO THE RECEPTION OF ARTICLES SENT BY EXHIBITORS OF THE UNITED KINGDOM.

61*a*. All Articles must be delivered at the Building with the Freight, Carriage, Porterage, and all charges and dues whatever paid upon them.

61*b*. All articles must be delivered at the south side of the Building.

[The delivery of the goods at or near one place was rendered necessary by the incomplete state of the building; but the experience of the removal of goods showed the great advantage which would have been derived by receiving the goods at numerous points round the whole exterior.]

61*c*. Every article sent separately, and every package must be legibly marked with the name of the Exhibitor or Exhibitors, and also with the Section and Class, whether Raw Materials, Machinery, Manufactures, or Fine Arts, in which it is proposed the articles shall be exhibited, or it will be liable to be returned.

[The marking the package on the outside with the Section and Class saved both the Executive Committee and the Exhibitors great trouble, as the latter knew where to find their goods after their delivery by the railway.]

61*d*. The following is the form of address, &c., which the Executive Committee request may be adopted :—

Section. Class.

To the Executive Committee for the Exhibition of 1851.

BUILDING, HYDE PARK, LONDON.

From [state Exhibitor's name and address.]

General Contents of Package.

[State whether Raw Materials, Manufactures, Machinery, or Fine Arts.]

61*e*. Before any article or package can be received into the Building, TWO copies of a list or invoice giving such description of *every* article as the Exhibitor wishes to appear in the Catalogue must have been duly forwarded on or before 31st January to the Executive Committee, on the proper forms for the Catalogue as furnished to the Exhibitor. A receipt will be given for these forms, which will be the authority for the admission of the Goods to the Building. If an Exhibitor's articles are contained in several packages, a brief list indicating the number of Packages, and the contents of each separate Package, should be sent previously or with the Packages.

61*f*. Articles intended to be exhibited in different Sections should not be included in *one* and the same package, unless they are to be exhibited together to illustrate each other. (*See* Decisions 123, 142, 143.)

61*g*. The articles and packages will be both unloaded at the Building, and taken to the places appointed in the Building by the officers of the Commission, and the Exhibitors, Agents, &c., will be duly informed when they can be admitted to the Building to unpack them for examination.

61*h*. When the articles are deposited in the Building, and upon receipt of due notice from the Executive Committee, Exhibitors themselves or their representatives, or Local Committees, or their Agents, must themselves unpack, put together, and arrange all articles.

61*i*. All packing cases, &c., must be removed by the Exhibitors, &c., as soon as they receive orders from the Executive Committee to do so. Packing cases not removed within three days after notice by the Exhibitors or Agents will be sold by the Executive Committee, and the proceeds applied to the funds of the Exhibition.

61*j*. To prevent loss, miscarriage, or mislaying, it is requested that articles or packing cases containing them, which occupy less bulk than three cubic feet, may not be sent separately, but that Exhibitors or Committees will so arrange that packages under such size, containing as far as possible, *the same classes of* articles, shall be transmitted in combination. Care should be taken to observe Rule 6, already laid down above.

61*k*. Every Exhibitor or his Agent or Servant will be provided with a Ticket to enable him to pass into the Building, to unpack and arrange the articles, which ticket he will be called upon to produce on entrance, and give up when required.

[The experience of the removal of goods showed the advantage of fixing absolutely upon the exhibitor or his authorized agents the responsibility of introducing the workmen necessary for the completion of his arrangements.]

LODGINGS FOR THE WORKING CLASSES.

62. With the view of affording information, a Register has been opened by the Secretary of the Executive Committee for the Exhibition of 1851, in which will be entered the names and addresses of persons disposed to provide accommodation for artizans from the country whilst visiting the Exhibition next year. Copies of this Register of Lodgings may be had on application. The Register contains a column in which the particulars, &c., of the accommodation each party proposes to afford will be entered. All applications for participating in these arrangements must be made through Local Committees.

[These Registers were not found to answer, and from the result it is obvious that there was no necessity for the Commission attempting to provide accommodation. *See* Appendix XXIV.]

62*a*. It must be clearly understood that whilst Her Majesty's Commissioners are desirous of collecting the fullest information likely to be serviceable to the Working Classes, they do not propose to charge themselves in any respect with the management, but simply to afford information.

63, 64, 65, 66, 67, 68, 69.

ARRANGEMENTS WITH FOREIGN POWERS.

70. No articles of foreign manufacture, to whomsoever they may belong, or wheresoever they may be, can be admitted for exhibition, *unless they come with the sanction of the Central Authority of the country of which they are the produce.* Her Majesty's Commissioners have communicated to such Central Authority the amount of space which can be allowed to the productions of the country for which it acts, and will also state the further conditions and limitations which may from time to time be decided on with respect to the admission of articles. All articles forwarded by such Central Authority will then be admitted, provided they do not require a greater aggregate amount of space than that assigned to the productions of the country from which they come ; and, provided also, that they do not violate the general conditions and limitations. It will rest with the Central Authority in each country to decide upon the merits of the several articles presented for exhibition, and to take care that those which are sent are such as fairly represent the industry of their fellow-countrymen.

71. Her Majesty's Commissioners will consider that to be the Central Authority in each case which is stated to be so by the Government of its country. Having once been put in communication with a Central Authority in any country, they must decline, absolutely and entirely, any communication with private and unauthorized individuals ; and should any such

be addressed to them, they can only refer it to the central body. This decision is essentially necessary, in order to prevent confusion.

72. The Commissioners do not insist upon articles being in all cases actually forwarded by the Central Authority, though they consider that this would generally be the most satisfactory arrangement; but it is indispensable that the sanction of such Authority should in all cases be expressly given, and that it be held responsible for the fitness of such articles for exhibition, and for not authorizing the exhibition of a greater quantity than can be accommodated in the space assigned to the productions of the country in question.

73. In case the Central Authority in any country should be of opinion that the space allotted to the productions of that country is greater than it will require, the Commissioners have to request that this opinion may be communicated to them, as it is obvious that it would not appear well if a large vacant space should be left in the department assigned to any country.

74. The Commissioners reserve to themselves the unfettered right of directing the arrangement of all goods that may be sent in such a manner as they may think proper. They will endeavour, in the case of articles the nature of which admits of their so doing, to cause the arrangement of each section to have some reference to the nationality of the productions exhibited in it, and will not intermix the productions of one country with those of another, in cases where the objects of the exhibition can be attained without their doing so. Whatever may be their arrangements, however, they undertake to find places for all articles sent by each country which could, if placed together, be exhibited in the aggregate space allotted to that country, provided only that they be informed in sufficient time what proportion of that space will be required for Raw Materials, what proportion for Machinery, what proportion for Manufactured Articles, and what proportion for objects of Fine Art.

75, 76, 77, 78, 79, 80, 81, 82, 83, 84.

[It was found in practice that the information necessary for carrying into effect this system could not be obtained from Foreign countries, and an arrangement strictly geographical was substituted for that indicated in the above Decision, except so far as concerned machinery in motion, which, of course, had to be brought to the motive power.—See also 149c.]

SPECIAL INSTRUCTIONS TO COLONIAL AND FOREIGN EXHIBITORS.

85. Colonial and Foreign productions will be admitted without paying duty, for the purposes of exhibition, but not for internal consumption. Her Majesty's Commissioners of Customs will consider all such articles as Bonded Goods.

Arrangements made by the Board of Customs.

86. That all Works intended for the Exhibition will, in the first instance, be admitted into this country without payment of duty; the goods will not be subject to examination at the waterside, but be conveyed to the place of Exhibition, at the expense of the Importer, under charge of proper officers of the Customs, to be there opened by the Importer or his agent, and examined in the presence of the proper officer of the Customs, in order to ascertain the rate of duty which they would be liable to if sold in this country, and to have such marks attached thereto as may be considered necessary to maintain the identity of the goods.

87. The goods brought for Exhibition will be considered as warehoused, under the Warehousing Regulations, in the premises appointed for the Exhibition; and security must be given in each case for the due re-exportation of the goods, or payment of the duty at the close of the Exhibition.

88. No Goods liable to duty to be on any account removed from the premises until the termination of the Exhibition, and then only on payment of the duty, or for re-exportation.

89. That Goods intended for Exhibition should be imported into one of the following Ports, viz.—London, Liverpool, Bristol, Hull, Newcastle, Dover, Folkestone, and Southampton; and the Board of Customs to make such regulations, and appoint such officers of the Department for taking charge of the goods at the place of Exhibition, in communication with the Commission for conducting the proceedings, as may be deemed essential for the security of the interests of the Revenue.

90. All goods which are forwarded to England will remain deposited in charge of the Customs, until claimed by an agent of the party sending them, *who will have to establish his right to remove them to the Building by producing the bill of lading*, and the certificate given by the Central Authorities in each country that such goods are for the Exhibition.

91. Goods placed in the charge of the officers of the Royal Commission by a Custom-house Agent, for which goods he has given bond, will not be permitted to be removed from the Exhibition by any person but the agent through whom they are exhibited.

92, 93, 94, 95.

RECEPTION OF FOREIGN AND COLONIAL ARTICLES ONLY.

92*a*. The Commissioners have published the following rules for the information of Foreign Commissions and Colonial Committees, respecting the reception of Articles at the Building.

92*b*. All Articles and Packages must be delivered at the Building with the Freight, Carriage, Porterage, and all charges and dues whatever paid upon them.

92*c*. All Articles and Packages must be delivered at the Entrances at the south side of the Building appointed to receive Foreign and Colonial productions.

92*d*. Every Article sent separately, and every Package, must be legibly marked with the name of the Foreign Country or Colony of which they are the produce or manufacture, and, as *far* as practicable, with the name of the Exhibitor or Exhibitors.

92*e*. The following is the Form of Address, &c., which the Executive Committee suggest should be adopted when practicable.

To the Executive Committee for the Exhibition of 1851.

BUILDING, HYDE PARK, LONDON.

From [state Country, and Exhibitor's name.]

96. It is requested that every Foreign Commission and Colonial Committee will cause to be prepared and forwarded to the Executive Committee Two copies of a list or invoice, giving such description in the English language of *every* article as the Exhibitor wishes to appear in the Catalogue. Forms in which it is suggested that the information for the Catalogue shall be made out are herewith transmitted. (See Decision 150.)

97. Officers of the Commission will assist in unloading the articles and packages at the Building, and taking the same to certain places appointed in the Building. In the first instance, the productions of each Country must be brought into one spot, to enable the Officers of Her Majesty's Customs to examine them, and the Officers of the Commission to ascertain the nature, bulk, &c.

98. When the Articles of each Country are thus deposited in the place assigned to them, the Commissioners and Agents appointed by Foreign Commissioners or Colonial Committees, or the Exhibitors, must themselves unpack, put together, and arrange all articles. In the case of Foreign and Colonial productions, as they must be necessarily unpacked for a considerable time before they are finally arranged for exhibition, the Executive Committee suggest that the Consignees or Agents, should be authorized to provide proper temporary covering to protect the articles from dust, &c.; and in the case of machinery and polished goods make the requisite arrangements for keeping the articles free from rust, &c.

[Oiled calico appeared on the whole to be the best article, as keeping off wet if any glass was broken overhead.]

99. All packing cases, &c., must be removed by the Agents, Exhibitors, &c., as soon as they receive orders from the Executive Committee to do so. Packing cases not removed within six days after notice has been given, will be sold by the Executive Committee, and the proceeds applied to the funds of the Exhibition.

99*a*. To prevent loss, miscarriage, or mislaying, it is requested that articles or packing cases containing them, which occupy less bulk than two cubic feet, may not be sent separately, but that packages under such size containing, as far as possible, the same classes of articles, shall be transmitted in combination.

100. Every Exhibitor or his Agent or Servant will be provided with a Ticket to enable them to pass into the Building, to unpack and arrange the articles, at such times as the Executive Committee may consider advisable, which Ticket he will be called upon to produce on entrance.

[Experience rather went to show that admission by tickets for the workmen was open to many abuses, and that such abuses would probably have been less frequent if several entrances had been provided, and each entrance had been placed under the control of some responsible person, authorized to admit any one who came on business, without further formality, tickets being given to the Exhibitors or their representatives only.]

THE PRIZES AND JURIES.

101. Her Majesty's Commissioners have had under their consideration the subject of the prizes to be awarded to exhibitors, and have resolved to take immediate steps for having (three) medals struck of various sizes and different designs, it being their opinion that this is the form in which it will, generally speaking, be most desirable that the rewards should be distributed. They have decided to select bronze for the material in which the medals are to be executed, considering that metal to be better calculated than any other for the development of superior skill and ingenuity in the medallic art, and at the same time the most likely to constitute a lasting memorial of the Exhibition.

[When the Jurors met they recommended two Medals only, and added in their Reports Honourable Mention. The third Medal has since been appropriated by the Commission to the use of the Jurors themselves, and two other Medals, for Exhibitors and those who have rendered Service to the Exhibition, have been prepared.]

102. With regard to the mode in which the prizes are to be awarded, the Commissioners

think it inexpedient to establish beforehand rules so precise as to fetter the discretion of the Juries upon which the task will ultimately devolve. It will be sufficient for the present to indicate the general principles to which it will probably be advisable to conform in the award of prizes for successful competition in the several departments of the Exhibition.

103. In the department of Raw Materials and Produce, for instance, prizes will be awarded upon a consideration of the value and importance of the article, and the superior excellence of the particular specimens exhibited; and in the case of prepared materials, coming under this head of the Exhibition, the Juries will take into account the novelty and importance of the prepared product, and the superior skill and ingenuity manifested in the process of preparation.

104. In the department of Machinery, the prizes will be given with reference to novelty in the invention, superiority in the execution, increased efficiency, or increased economy, in the use of the article exhibited. The importance, in a social or other point of view, of the purposes to which the article is to be applied, will also be taken into consideration, as will also the amount of the difficulties overcome in bringing the invention to perfection.

105. In the department of Manufactures, those articles will be rewarded which fulfil in the highest degree the conditions specified in the sectional list, viz.:—Increased usefulness, such as permanency in dyes, improved forms and arrangements in articles of utility, &c. Superior quality, or superior skill in workmanship. New use of known materials. Use of new materials. New combinations of materials, as in metals and pottery. Beauty of design in form, or colour, or both, with reference to utility. Cheapness, relatively to excellence of production.

106. In the department of Sculpture, Models, and the Plastic Art, the rewards will have reference to the beauty and originality of the specimens exhibited, to improvements in the processes of production, to the application of art to manufactures, and, in the case of models, to the interest attaching to the subject they represent.

107. These general indications are sufficient to show that it is the wish of the Commissioners, as far as possible, to reward all articles in any department of the Exhibition which may appear to competent judges to possess any decided superiority, of whatever nature that superiority may be. It is the intention of the Commissioners to reward excellence in whatever form it is presented, and not to give inducements to the distinctions of a merely individual competition. Although the Commissioners have determined on having three Medals of different sizes and designs, they do not propose to instruct the Juries to award them as first, second, and third in degree for the same class of subjects. They do not wish to trammel the Juries by any precise limitation; but they consider that the Juries will rather view the three kinds of Medals as a means of appreciating and distinguishing the respective characters of the subjects to be rewarded, and not of making distinctive marks in the same Class of Articles exhibited. They fully recognise that excellence in production is not only to be looked for in high-priced goods, in which much cost of labour and skill has been employed, but they encourage the exhibition of low-priced fabrics, when combining quality with lowness of price, or with novelty of production. They can readily conceive that Juries will be justified in giving the same class Medal to the cheapest Calico Print, made for the Brazilian or other South American market, as they would to the finest piece of *Mousseline de Soie* or *Mousseline de Laine*, if each possessed excellence of its own kind.

108. In selecting the Juries who are ultimately to guide them in making their award, the Commissioners will take the greatest pains to secure the services of men of known ability to form a judgment, above the suspicion of either national or individual partiality (for which purpose they will be composed partly of English, and partly of foreigners); and who may be expected to recognise and appreciate merit wherever it may be found, and in whatever way it may show itself.

109. No competitor for a prize in any section will be allowed to act upon a jury to award the prizes in that section.

110. The names of persons selected to act on these Juries will be published when decided upon.

[A list of those who acted is printed with the Reports of the Jurors.]

111. All persons, whether being designers or inventors, the manufacturers or the proprietors, of articles, will be allowed to exhibit; but they must state the character in which they do so. They may also state the names of all or any of the parties who have aided in the production. In awarding the prizes, however, it will be for the Juries to consider, in each individual case, how far the various elements of merit should be recognised, and to decide whether the prize should be handed to the exhibitor, or to one or more of those who have aided in the production.

112. Lastly, the Commissioners in announcing their intention of giving Medal prizes, do not propose altogether to exclude pecuniary grants, either as prizes for successful competition, or as awards under special circumstances, accompanying, and in addition to the honorary distinction of the medal. There may be cases in which, on account of the condition of life of the successful competitor (as, for instance, in the case of workmen), the grant of a sum of money may be the most appropriate reward of superior excellence; and there may be other cases of a special and exceptional nature, in which, from a consideration of the expense

incurred in the preparation or transmission of a particular article entitled to a prize, combined with a due regard to the condition and pecuniary circumstances of the party exhibiting, a special grant may with propriety be added to the honorary distinction. The Commissioners are not prepared, for the present at least, to establish any regulations on these heads. They consider it probable that a wide discretion must be left to the juries to be hereafter appointed in respect to the award of money prizes, or the grant of money in aid of honorary distinctions; it being understood that such discretion is to be exercised under the superintendence and control of the Commission.

113. Articles marked "Not for Competition" cannot be admitted.

114*a*. There shall be one Jury to each of the Thirty Classes, into which the Exhibition is divided.

[**In Class V. it was found advisable, when in operation, to appoint a Sub-Jury for Carriages, and in Class X. three Sub-Juries were appointed—for Musical Instruments, Horology, and Surgical Instruments.**]

114*b*. The number of Jurors in each Jury is determined by the amount of articles exhibited in each Class, and the greater or less diversity of the subjects included in it, but no abstract idea of the relative importance of the Classes is involved in the numbers attached to them.

114*c*. The following list describes the Thirty Juries, and the number of Jurors to each Jury:—

			No. of Jurors.
A. *Raw Materials.*	I.	Mining, Quarrying, Metallurgical Operations, and Mineral Products	8
	II.	Chemical and Pharmaceutical Processes and Products generally	8
	III.	Substances used as Food	6
	IV.	Vegetable and Animal Substances chiefly used in Manufactures, as Implements, or for Ornament	5
B. *Machinery.*	V.	Machines for direct use, including Carriages and Railway and Naval Mechanism	12
	Vᴀ.	Carriages	6
	VI.	Manufacturing Machines and Tools	12
	VII.	Civil Engineering, Architectural and Building Contrivances	
	VIII.	Naval Architecture and Military Engineering; Ordnance, Armour, and Accoutrements	
	IX.	Agricultural and Horticultural Machines and Implements	15*
	X.	Philosophical Instruments and processes depending upon their use; Musical, Horological, and Surgical Instruments	12
	Xᴀ.	Musical Instruments	10
	Xʙ.	Horological Instruments	4
	Xᴄ.	Surgical Instruments	6
C. *Textile Fabrics.*	XI.	Cotton	10
	XII.	Woollen and Worsted	12
	XIII.	Silk and Velvet	10
	XIV.	Manufactures from Flax and Hemp	10
	XV.	Mixed Fabrics, including Shawls, but exclusive of Worsted Goods (Class XII.)	12
	XVI.	Leather, including Saddlery and Harness, Skins, Furs, Feathers, and Hair	10
	XVII.	Paper and Stationery, Printing and Bookbinding	8
	XVIII.	Woven, Spun, Felted, and laid Fabrics, when shown as specimens of Printing or Dyeing	10
	XIX.	Tapestry, including Carpets and Floor-cloths, Lace and Embroidery, Fancy and Industrial Works	10
	XX.	Articles of Clothing for immediate, personal, or domestic use	8
D. *Metallic, Vitreous, and Ceramic Manufactures.*	XXI.	Cutlery and Edge Tools	6
	XXII.	Iron and General Hardware	12
	XXIII.	Working in Precious Metals, and in their imitation, Jewellery, and all articles of Virtû and Luxury, not included in the other Classes	10
	XXIV.	Glass	8
	XXV.	Ceramic Manufacture, China, Porcelain, Earthenware, &c.	8
E. *Miscellaneous Manufactures.*	XXVI.	Decoration Furniture and Upholstery, including Paper Hangings, Papier Maché, and Japanned Goods	12
	XXVII.	Manufactures in Mineral Substances, used for building or decoration, as in Marble, Slate, Porphyries, Cements, Artificial Stones, &c.	8
	XXVIII.	Manufactures from Animal and Vegetable Substances, not being Woven or Felted, or included in other Sections	8
	XXIX.	Miscellaneous Manufactures and Small Wares	8
F. *Fine Arts.*	XXX.	Sculpture, Models, and Plastic Art	15
			318

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* The Jury for Agricultural Implements is made exceptional, as the Agricultural Committee, consisting of eminent Members of the Royal Agricultural Society, have undertaken the functions of the Jury. Foreigners may be added to this Committee if desired.

114*d*. A classified List of subjects under the province of each Jury is prepared, and forms the limitation to each class.

114*e*. The Articles in the Building are arranged as much as possible in the 30 Classes so as to be coincident with the field of action of each Jury, and to facilitate its labours.

114*f*. If Exhibitors accept the office of Jurors, they cease to be competitors for prizes in the class to which they are appointed, and these cannot be awarded either to them individually, or to the firms in which they may be partners.

[Articles shown by Exhibitors in the Class in which they acted as Jurors were marked as "Exhibited by a Juror of this Class, and therefore not eligible for award."]

114*g*. Juries may take evidence when a majority of the Jury deem it advisable, and name the persons to be consulted. Jurors of another class may also be called in aid by a Jury, when a knowledge involved in that class is required.

114*h*. Juries may act in matters of detail by sub-committees, but no award can be made except by the majority of the Jury.

114*i*. Before a Jury can finally make its awards, they must be submitted to a meeting of the Juries of allied subjects, as indicated in the groups in the Decision 3. These Meetings of allied Juries will have power to confirm the award of the Juries, and to investigate any disputed decisions. Before, however, the awards are published, they must be submitted to a Council, consisting of the Chairmen of the Juries, in order to secure uniformity of action—and a compliance with the regulations originally laid down by that body.

114*j*. The awards of a Jury, when reported by the Council of Chairmen as being made in conformity to the rules, are final.

114*k*. The Juries will commence their duties on Monday the 12th May, at 10 o'clock, and will be aided in the general transaction of the business by a person to be named by the Royal Commissioners, who by himself, or by a deputy to be approved of by the Commission, may be present at their deliberations, for the purpose of explaining the rules of the Commission. This Nominee of the Commission will not have a vote in any of the Juries, or at all interfere in the adjudication of awards.

CONSTITUTION OF JURIES.

115*a*. The Jury will in general consist of an equal number of British subjects and of Foreigners.*

115*b*. If Foreign Commissions do not send a sufficient number of Foreigners to represent one-half of the Jurors in each Class, the deficient numbers may be completed by the appointment of British subjects.

115*c*. Country as well as metropolitan districts will be represented on the Jury.

115*d*. Each Jury will be presided over by a Chairman to be nominated by the Commissioners, and he will be aided by a Deputy Chairman to be elected by the Jury.

115*e*. Juries may appoint one of their own body as a Reporter.

COUNCIL OF CHAIRMEN.

116*a*. The Chairmen of the Thirty Juries will be associated as a body, to be called the "Council of Chairmen."

116*b*. In the absence of a Chairman, the Deputy Chairman will take his seat at the Council.

116*c*. The Council of Chairmen will be constituted, as far as practicable, of British subjects and Foreigners in equal numbers.

116*d*. The first and chief duties of the Council of Chairmen will be to frame the rules for the guidance of the Juries.

116*e*. The Council will also have to determine the conditions under which the 1st, 2nd, and 3rd Class Medals respectively are to be awarded, and to define the general principles to which it will be advisable to conform in the awards in the several departments of the Exhibition. It is the wish of the Commission that Medals should be awarded to articles possessing decided superiority of whatever nature that superiority may be, and not with reference to a merely individual competition. The three Classes of Medals are intended to distinguish the respective characters of subjects, and not as first, second, and third in degree for the same class of subjects.

116*f*. The Council of Chairmen must see that the awards of the individual Juries are in accordance with the rules before they are considered final.

116*g*. Although the Commissioners may be disposed, under peculiar circumstances, as set forth in Decision No. 112, to consider the propriety of pecuniary grants to individual exhibitors,

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* The following list contains the actual number of the Jurors furnished by each country:

Austria	17	North Germany	2	Switzerland	7
Belgium	14	Holland	2	Sweden	1
Denmark	1	Italy	6	Turkey	5
Egypt	2	Portugal	2	United States	23
France	38	Russia	7	Zollverein	24
Great Britain	160	Sicily	1		
Greece	1	Spain	4	Total	318

they will only take such applications into consideration on the recommendation of the several Juries, sanctioned by the Council of Chairmen.

116*h*. As some of the most important duties of the Council of Chairmen are preliminary to the action of the Juries, it is necessary that they should meet one week previous to the assembling of the Juries. The duties of the Council will therefore commence on Monday, the 5th of May.

116*i*. In order to represent the wishes of the Commission, and to explain its rules, a nominee of the Commission will attend the meetings of the Council, and aid it in the transaction of business; but he will not possess a vote, or act as a member of the Council.

MODE OF APPOINTING THE ENGLISH JURORS.

117*a*. Those towns which exhibit to a considerable extent in any of the Classes will be invited to send a list of names of persons who would efficiently represent the knowledge of those Classes as Jurors.

117*b*. It will be necessary to state, according to the classified Jury list, the subdivisions of the Class with which the person recommended is specially acquainted; and all nominations must be made in classes, and not in the aggregate.

117*c*. As it is necessary to reduce the lists to the standard number for each Jury, the Commission charges itself with this duty.

117*d*. Those persons who have been recommended as Jurors, but who from the small numbers of the Jury are not placed on it, may, on the application of a Jury, be called in on special occasions, to give aid, under the title of Associates, but without a vote.

[Many of the Juries called in Experts in addition to the Associates.]

MODE OF APPOINTING FOREIGN JURORS.

118. *Note*.—The decisions regarding Foreign Jurors are delayed until the opinions of the agents of Foreign Commissions are obtained as to the proportions in which each nation should be represented in the respective classes, and as to the principles of nomination most agreeable to the countries which they represent.

MEETING OF JURIES.

119*a*. The Jurors, on being appointed, will receive immediate notice of appointment, and their names will be published.

119*b*. The Chairmen will be required to meet on Monday the 5th May, at 10 o'clock.

119*c*. The Juries will meet for the transaction of business, on Monday the 12th May, at 10 o'clock.

119*d*. Although impossible to set apart special days in which the Juries alone can examine the Articles exhibited, to the exclusion of the public, arrangements will be made to carry on these examinations with as little inconvenience as possible.

[Most of the Juries found it expedient to commence their duties early in the morning, before the admission of the public.]

119*e*. Jurors, immediately on their arrival in London, are requested to report themselves at the Jury Office, in the Exhibition Building, where they will obtain their Jurors' Ticket, and receive all necessary information.

120. The following Minute of the Royal Commission on the Award of the Council Medal was afterwards published in explanation of the Decision relative to Prizes:—

"With reference to the awards of the Council Medal, the Commissioners think it proper to recapitulate the terms of those Decisions (107 and 116*e*), and to explain with somewhat greater minuteness the exact meaning which they intended to attach to them.

"It is obvious that in the case of manufactured Articles mere excellence of manufacture, being in other words a mere difference in degree between subjects included in the same class, cannot be rewarded with a Council Medal without a deviation from the principle of this decision. If, however, there is any novelty of invention or adaptation, or any peculiarity in the mode of manufacture, which can also be taken into account, and of which the importance and value shall be judged sufficient, the Council Medal may properly be given.

"Thus, for example, if a piece of Linen be exhibited of such remarkable excellence as to be at once and by unanimous consent recognised as greatly superior to any other piece of Linen in the whole Exhibition, yet, if the ordinary processes only have been employed in its production, and if it be not distinguished by any originality in the design applied to it, it ought not to have a Council Medal, however great may have been the care and labour bestowed upon it. But if, on the other hand, a piece of Linen of very decided excellence should be produced by a new method, exhibiting advantages not hitherto attained, it would be quite within the spirit of the Decision in question that such method should be rewarded with a Council Medal.

"Or again, if a sample of Sugar of extraordinary fineness should be exhibited, if such fineness were the result only of the application of the ordinary processes, with more than ordinary care and skill, it ought not to have the Council Medal; but if a new chemical agent or a new process had been employed with advantage in its production, the process by which it was produced, if sufficiently important, would be eligible to receive it.

"It is not, however, intended to limit the granting of the Council Medal to cases of production by a new process: such a rule would, of course, not apply where the question of Fine Art was involved. In judging of works of pure art, the Medal will, of course, be given to those cases where the most remarkable and pre-eminent genius has been displayed; and in cases where design is applied to an article of Manufacture, it may sometimes happen that it will be of sufficient originality and importance to justify the grant of a Council Medal as an acknowledgment of the taste displayed.

"Thus, for instance, a piece of Porcelain or a piece of Tapestry, though they could not receive the Council Medal for the mere excellence of the workmanship, might properly receive it for a very extraordinary and original merit of the design applied to them. And, in like manner, though a Council Medal ought not to be given to a piece of Furniture, of which the principal merit was that it was well made, it might be awarded to it if there were so much beauty in the design as to entitle it to great distinction as a Work of Art.

"The Commissioners must, however, limit themselves by observing that they would not recognise beauty of design as a sufficient title to a Council Medal unless applied to an object of some importance. Very great merit might be found in the carving of an umbrella or a pipe, yet it might be thought improper to reward such merit with a Council Medal, on account of the comparative insignificance of the subject.

"This last observation naturally leads the Commissioners to offer some remarks upon another point on which it is possible that doubts may arise; namely, whether the fact of an Exhibitor having incurred great expense in the preparation of an Article for exhibition should entitle him to a Council Medal; as, for instance, in the case of the Exhibitors of valuable Raw products, of specimens of Manufactured Goods remarkable only for the size of the specimens, of very precious Jewels, or of collections of the productions of particular districts. In these cases the Commissioners are decidedly of opinion that the mere fact of a large outlay of money ought not to be regarded as entitling an Exhibitor to receive a Council Medal, though care should, of course, be taken, that his zealous co-operation in promoting the objects of the Exhibition, be properly noticed in the Report of the Jury of his Class.

"In the foregoing remarks, the Commissioners have repeatedly spoken of rewarding inventions and new processes. They think it right, therefore, to guard themselves against being supposed to throw upon the Juries the duty of discovering whether each particular object which they mark for reward is actually the invention of the party claiming the merit of it. They can conceive that, in many cases, such an investigation would, under the circumstances, be impossible. In Machinery, particularly, they presume that the Juries will reward an important Machine without undertaking to pronounce whether the novelties exhibited in its construction have been originated by the Exhibitor, or have been borrowed or adapted by him from some one else. The test of invention will be satisfied if the Machine be rewarded for its importance and ingenuity, and not for the mere excellence of workmanship.

"As the Commissioners have referred to the claims of invention, it would appear to be desirable to fix some date beyond which invention should cease to be a claim for the Council Medal. It has not been made a condition in the admission of Articles to the Exhibition that they should be new; but it would be obviously difficult and inexpedient to discuss claims of invention made many years since. It appears to the Commissioners that, as most European States consider from fourteen to fifteen years a proper period for limiting by patents the use of an invention to the discoverer before it becomes the property of the public, this period would form a limit, beyond which the claims of invention should not be admitted.

"In communicating these remarks to the Council of Chairmen, the Royal Commissioners must again repeat that they are only anxious to obviate the danger of their published Decisions being misunderstood. The responsibility of giving effect to those Decisions must rest with the Council of Chairmen, in whom the control of the separate Juries, and more particularly the duty of regulating the distribution of the Council Medal, has been specially vested; and the Royal Commissioners would strongly impress upon them the responsibility under which they lie of exercising that control with care and firmness, according to the opinions which they may personally entertain of the merits of the several cases brought before them."

121, 122.

CLASSIFICATION AND ARRANGEMENT.

123. The Articles exhibited will be divided into the following Thirty Classes:—

Section I.

Raw Materials and Produce,—illustrative of the natural productions on which human industry is employed.—Classes I. to IV. (*see* Decision 114c).

Section II.

Machinery for Agricultural, Manufacturing, Engineering, and other purposes and Mechanical Inventions,—illustrative of the agents which human ingenuity brings to bear upon the products of nature.—Classes V. to X. (*see* Decision 114c).

Designs for Manufactures are to be admitted in the same section with the class of articles for which they are proposed.

Section III.

Manufactures,—illustrative of the result produced by the operation of human industry upon natural produce.—Classes XI. to XXIX. (*see* Decision 114c).

SECTION IV.

XXX. Fine Arts, Sculpture, Models, and the Plastic Arts generally, Mosaics, Enamels, &c.—illustrative of the taste and skill displayed in such applications of human industry.

Articles belonging to one Section may be admitted to another, where they may be considered necessary; but in such cases for illustration only.

Section 1.—*Raw Materials and Produce.* Under Raw Materials in this Section are to be included all products of the Vegetable, Mineral, and Animal Kingdoms, either in an entirely Raw state, or in any Stage of Preparation, previous to arriving at the state of a Finished Manufacture (as in Section III).

124, 125, 126, 127, 128, 129, 130, 131, 132, 133.

PRELIMINARY INSTRUCTIONS IN REFERENCE TO EACH OF THE FOUR SECTIONS.

SECTION I.—RAW MATERIALS AND PRODUCE.

Division (A.)—*Mineral Kingdom.*

134. It is desirable that the Raw Materials should be shown in connexion with the produce of the Mineral Kingdom so as to form a history and explanation of the processes employed to fit them for the useful and ornamental purposes of life. The Exhibition would thus comprehend:

135. Illustrations of the various modes of extracting and preparing the *Raw Materials* for Produce.

136. Illustrations of methods of reducing, working, or combining Raw Materials, so as to obtain *Products* which may afterwards receive applications to the useful or ornamental purposes of life.

137. The Specimens fitted for exhibition should include only those remarkable for their *excellence*, for *novelty* in their occurrence or application, or *economy* of their extraction or preparation; or,

138. Those remarkable as *illustrations* of some further processes of Manufacture

Division (B.)—*Vegetable Kingdom.*

139. The objects which the Commission is most desirous of receiving, among the products of the Vegetable Kingdom, are such as from their utility, novelty, or practical interest may appear especially deserving public attention. Peculiarly fine samples of substances in common use; authenticated samples of substances having similar properties, but derived from different sources—such as Arrowroot, Sago, &c. Dyeing Materials, accompanied by specimens exhibiting the effect of such Materials. Fancy Wood, both in the polished, rough, and manufactured state. All sorts of materials, which are applicable to the manufacture of linen, cordage, wicker-work, paper, and the like.

Division (C.)—*Animal Kingdom.*

140. As illustrations in this Division, the various Processes of Preparation may be exhibited in connexion with the Raw Materials; and a Finished Article may be introduced as the termination of a series of objects in preparatory stages.

SECTION II.—MACHINERY.

Division (A.)—*Machines for Direct Use.*

141. Machines will be exhibited in motion, whenever it may be desirable to do so, and it may be found practicable to provide the necessary arrangements for that purpose. *See* paragraph 15.

Division (B.)—*Manufacturing Machines.*

142. Although in arranging this class for exhibition it will generally be found advisable to separate the Products from the Producing Mechanism, yet the latter should always be accompanied with sufficient specimens of the Raw Material, in its several stages of manufacture, and of the finished product, to make the operation of the Machinery intelligible.

143. The complete series of tools and machinery that belongs to the manufacture of any object of common use, such as a watch, a button, or a needle, accompanied by specimens of the object and its parts, in their various stages of progress, is so instructive and interesting, that it is very desirable to obtain several such series for the proposed Exhibition.

SECTION III.—MANUFACTURES.

144. Manufactures to be exhibited in this Section must be in their *Finished* state, as fit for use.

SECTION IV.—SCULPTURE, MODELS, AND THE PLASTIC ART.

145. Objects formed in any kind of material, if they exhibit such a degree of taste and skill as to come under the denomination of *Fine Art*, may be admitted into this Section.

146. The Specimens exhibited shall be works of Living Artists, or works of Artists, deceased within three years before the 1st of January, 1850.

147. Oil Paintings and Water Colour Paintings, Frescoes, Drawings, and Engravings, are not to be admitted, except as illustrations or examples of materials and processes; and Portrait Busts are not to be admitted.

148. No single Artist will be allowed to exhibit more than three works.

[It was not found necessary to act on this rule.]

ARRANGEMENT OF ARTICLES.

149. The general principles which will govern the *arrangement* of Articles in the *Building* are as follows:—

149*a*. The productions of the United Kingdom and the British Colonies will be grouped *Westward* of the Central Transept.

The productions of the United Kingdom will be arranged into the above-mentioned thirty classes as far as practicable.

149*b*. The productions of each Colony will be placed together, and classified as far as practicable into the thirty classes aforesaid.

149*c*. The productions of each Foreign Country will be placed together *Eastward* of the Transept—except *Machinery in Motion*, which, on account of the motive power being at the *North-west end* of the Building, must be placed in that part of the Building. The productions of each Country will be classified nation by nation, and as far as practicable into the thirty classes already adopted for the United Kingdom.

149*d*. As a general rule, Machinery will be placed at the *North* side, and Raw Materials and Produce brought to the *South* side of the Building. The intermediate parts will be occupied by Manufactures and Fine Arts.

149*e*. There is hardly any choice in respect *of light*, which is nearly the same in all parts of the Building. The *South* side, as well as the roof of the Building, both in the *North* and *South* sides, will be covered with canvas. The sides of the upper and the gallery tier on the *North* will not be so covered.

149*f*. The following decisions of Her Majesty's Commissioners may be here repeated, *viz.*:—5, 9, 10, 11, 14, 15*a*, 15*b*.

149*g*. The Commissioners, accordingly, with confidence, resign to the Exhibitors themselves the proper exhibition of their goods, and the responsibility of making the necessary preparations for displaying them, subject only to such general rules as shall be conducive to the interest of all parties. The Executive Committee are desirous of pointing out that great mutual advantages will arise from Exhibitors of the same description of articles acting as much as possible in combination in the fitting up of their spaces, and in arranging for the cleaning, watching, and general superintendence of the respective articles; and Exhibitors on a small scale should bear in mind that by such a system of combination they may be able to secure, at a small expense to themselves, the services of one person jointly to watch over and clean their goods, and furnish explanations to the Public.

149*h*. It may be convenient to Exhibitors to know that Messrs. Fox, Henderson, and Co., the Contractors for the Building, are prepared, in accordance with the wishes of Exhibitors, to construct counters, shelves, frames, stands, and every necessary fitting for the proper display of the articles to be exhibited, and to lend or sell glass-cases where required. A tariff of prices may be obtained of Messrs. Fox, Henderson, and Co., at the Building. At the same time, Exhibitors are at liberty to make any other arrangements more satisfactory to themselves; but in exercising their own judgment and taste, Exhibitors will obviously bear in mind that the effect of the Exhibition must materially depend upon the mode in which they exercise this privilege thus confided to them.

[Not much advantage was taken of this arrangement. The whole time and attention of the staff of Messrs. Fox and Henderson were necessarily required for the completion of the Building.]

149*i*. Every Exhibitor who desires to attend himself, or by his representative, during the Exhibition, must obtain permission to do so from the Executive Committee. He must deduct the sitting or standing space for such attendant from the superficial floor or counter space allotted to him; but he will be allowed to make up the deduction by building up and arranging those goods properly authenticated for admission, on shelves one above the other, within the boundary of his allotment, to any height he pleases, under nineteen feet from the floor.

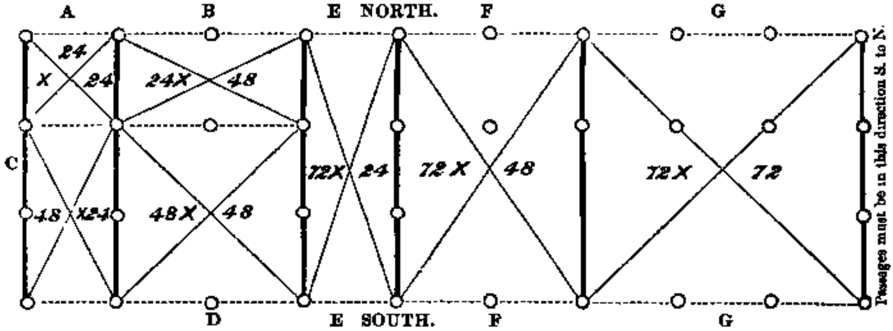
[Experience went to show, that when an article required care or explanation, the attendance of the proprietor, or of some one in his service, added to the interest and instruction of the public. The Executive Committee, therefore, relaxed the rule for deducting the space for an attendant.]

149*j*. There will be a central Passage, *forty-eight* feet wide, a Corridor at the *North* and at the

South side, each *twelve* feet wide, and two intermediate Passages of eight feet, all running from the *East* to the *West ends* of the Building. As a general rule, these will be intersected by Passages at right angles, running from *North* to *South*.

[**The North and South corridors were reduced to 8 feet in width, and were found wide enough.**]

149*k*. The Building is divided laterally (*i. e.*, from *North* to *South*) by ranges of columns of *twenty-four* feet from centre to centre. Spaces of 24 × 24 feet, as at A; 48 × 24 feet, as at B and C; or 48 × 48 feet, as at D; and in some cases of 72 × 24 feet, as at E; or 72 × 48 feet, as at F; or 72 × 72 feet, as at G, running from *North* to *South*, may be arranged according to the wishes of the Exhibitors; provided always, that there shall be at least *one* entrance and exit Passage of *eight* feet, running from *North* to *South*, or else *two* entrance or exit Passages of not less than *five* feet each for every space of *twenty-four* feet; and that no communications from *East* to *West* between any passages shall be established without special leave of the Executive Committee in writing.



149*l*. The Exhibitors of the United Kingdom to whom space has been allotted by their various Local Committees, and whose names have been duly returned to the Executive Committee, will be arranged into the Thirty Classes. As a general rule, the articles of an Exhibitor will not be separated. A certain space will be allotted to each Class, and specific places to subdivisions in Towns, &c., and finally to each Exhibitor.

149*m*. Spaces of the requisite dimensions will be set apart to receive the productions of the Colonies and each Foreign Country. And the charge of these Departments, as well as the arrangement of the productions, will be handed over to each Commissioner or Agent representing such Colonies or Foreign Country.

149*n*. The length of the floor and counter spaces will be regulated by circumstances, the width of them may vary from *one* to *sixteen* feet. The height of the counters should be generally about *two* feet *six* inches.

149*o*. The wall or hanging space will be obtained, either with or without counter in connexion, between the columns running from *North* to *South*. The wall, or partition space, if required to be solid, may be built up by Exhibitors to any desired height. The hanging space for light goods may be obtained by suspending lines between the columns and from the girders in the galleries.

149*p*. The wall or hanging spaces may be of any height under *forty* feet, and experiments in this Building have shown that it is desirable that hanging Fabrics should, as a general rule, be of not less than *seventeen* to *twenty* feet drop.

149*q*. All communications from Exhibitors on the subject of *Arrangement* must be in writing, in the first instance, addressed to *M. D. Wyatt, Esq., at the Building for the Exhibition, Kensington Road, London,* and marked at the top of the sheet "*Arrangement*" (Raw Produce) or (Machinery), or (Manufactures) or (Fine Arts), marking also to which of the Thirty Classes they belong; and the Executive Committee request that they may not be mixed up with communications referring to other Departments of the Exhibition.

RULES POSTED in the BUILDING during the ARRANGEMENTS.

149*r*. No person whatever is permitted to be in the Building without a pass, number, or ticket.

Every person must show his pass, number, or ticket, whenever demanded.

Every person must keep strictly within that part of the building which is named in his pass. Any person infringing this rule will forfeit his right of entrance.

Every person is forbidden to touch goods not his own.

Every person not properly authorized, who shall be detected in the act of handling, conveying, or removing any package or article from one part of the Building to another, will be liable to be taken into custody.

Every case of embezzlement, or attempt at embezzlement, or any other species of fraud, will be prosecuted with the utmost rigour of the law.

To prevent accidents from fire, all persons using tow for cleaning engines are to provide a slate or metal box to contain the waste until removed from the Building. All smoking is strictly forbidden. Every person is forbidden to introduce any lucifer matches or light of any kind into the Building.

[*" No smoking allowed " was affixed in all parts of the Building in various languages.*]

NOTICES respecting the FITTING of COUNTERS, &c.

149*s*. Before any Exhibitor, whether British or Foreign, can be permitted to commence any works in the Building, he must first obtain an authority in writing from the Superintendent of the Class in which his articles are to be arranged, or the Agent in charge of the Foreign Division, which must be countersigned by Mr. M. D. Wyatt.

The authority must set forth the particulars of the work which the Exhibitor is permitted to construct, and the Form is herewith attached.

No alteration in the structure of the Building, and no connexion with the drains, the water, or gas mains, can be permitted to be made by any Exhibitor; if necessary, this must be done by Messrs. Fox, Henderson, and Co., the Contractors for the Building, at the Exhibitor's expense.

Before the position can be settled of any articles to be placed on the floor, weighing more than 2 cwt.,* or any articles to be suspended, the position must be certified as proper in all respects by Messrs. Fox, Henderson, and Co., and their certificate endorsed on the Exhibitor's "Permit for Fittings."

[*This was always interpreted by the Executive Committee, and by Messrs. Fox and Henderson themselves, as 1 cwt. per square foot.]

No article can be permitted to rest against any wall or column without the permission of the Superintendent of the Class.

All arrangements which affect the general decorative effect of the Building must be referred to Mr. Owen Jones, and sanctioned in writing by him.

Exhibitors are requested to use *red cloth* to cover their counters and wall spaces, and to complete with *red cloth* those parts not already covered by fittings or articles. The Superintendents of the Classes are prepared to show specimens of the cloth considered suitable.

CATALOGUE.

150. The Executive Committee are desirous of impressing upon Exhibitors that the formation of the Catalogue which, however great may be its bulk, must necessarily be compiled and printed in a very short time, will be much facilitated, if Exhibitors will have the kindness to follow the rules hereinafter prescribed when they furnish the descriptions of the Articles as they wish them to appear in the Catalogue.

[Owing to the late arrival and tardy arrangement of some portions of the Exhibition, particularly on the Foreign side,--to the delay occasioned by the preparation of engravings, and to other circumstances,– the large Official Catalogue was not completed and published until nearly the close of the Exhibition, and some inconvenience resulted therefrom. In any future exhibition it would be desirable that exhibitors should be required *to affix legible explanatory notices* to each of their articles at the opening, and that the Catalogue should not be delayed for the preparation of engravings, which might be published in a separate volume.]

Every Exhibitor should fill up the description of every Article, or series of Articles he exhibits, on printed forms which may be had of all Local Committees, &c. The sheets or *forms* must be written on *one side only*.

Should the description extend beyond one page, each separate sheet or form must be marked with the Exhibitor's name, and numbered consecutively.

To prevent errors in compilation and misprinting, it is desirable the HANDWRITING should be VERY CLEAR, especial care being taken with all names and technical terms.

It is indispensable that each Exhibitor should furnish the following particulars, and in the exact order prescribed:

printing the Catalogue.

I. . . . . Exhibitor's surname . . . Christian name.
II. . . . . . Country . . . . Address, stating the nearest Post Town.
III. . . . . . Capacity in which the Exhibitor appears, whether as Producer, Importer, Manufacturer, Designer, Inventor, or Proprietor.
IV. The name and description of every Article of importance or class of Articles exhibited.

It will add greatly to the value and public utility of the Catalogue, if in the descriptions of the articles the following particulars could be given, as far as may be practicable, but the Exhibitors will understand that it is quite optional with them to afford such information or not.

As respects Articles to be exhibited
In Section I.*—Raw Materials and Processes,—the descriptions should specify—

- *a* The commercial name in English, and, if known, in French and German.
- *b* The scientific name.
- *c* The place where obtained. The name of the mines, and period they have been worked; the chemical condition and description, should be given with minerals.
- *d* The place where exported and imported.
- *e* The principal uses, modes of use, and any suggestions for new applications.
- *f* The consumption, or quantity produced at a given period.
- *g* The superior excellence of the particular specimens.
- *h* In the case of processes, such as dyes, or prepared materials, such as mixed metals, it should be stated whether the Article is patented or not, with the name and address of the Patentee. The novelty and importance of the prepared product, and the superior skill and ingenuity manifested in the process of preparation should also be very briefly pointed out. Date of commencement of manufacture in its present form.
- *i* Where price is an element for the consideration of the Jury, the price at which the importer or producer can sell the Article wholesale, or the cost price, should be stated for the information of the Jury only.
- *j* Any particular features which the Exhibitor desires to be noticed by the Jury.

As respects Articles to be exhibited
In Section II.—Machinery,—the descriptions should specify—

- *a* The uses.
- *b* The novelty, if any, in the invention.
- *c* Superiority of execution.
- *d* Increased efficiency or economy.
- *e* The importance of the Article in a social or other point of view.
- *f* The place where produced.
- *g* Whether the Article is patented or not, with the name and address of the Patentee.
- *h* Where price is an element for the consideration of the Jury, the price at which the producer can sell the Article wholesale or the cost price, should be stated for the information of the Jury only.
- *i* Any particular features which the Exhibitor desires to be noticed by the Jury.

As respects Articles to be exhibited
In Section III.—Manufactures,—the descriptions should specify—

- *a* The uses.
- *b* The novelty.
- *c* Superiority of execution.
- *d* Improved forms or arrangement.
- *e* Increased efficiency or economy.
- *f* New use of known Materials.
- *g* Use of new Materials.
- *h* New combinations of Materials.
- *i* Importance of the Article in a social or other point or view.
- *j* The place or places where manufactured, period when manufactory was established, number of hands employed.
- *k* Whether the manufacture is patented; whether the design is registered; with the name and address of the Patentee or party registering.
- *l* Where price is an element for the consideration of the Jury, the price at which the importer or manufacturer can sell the Article wholesale, or the cost price, should be stated for the information of the Jury only.
- *m* Any particular features which the Exhibitor desires to be noticed by the Jury.

As respects Articles to be exhibited
In Section IV.—Fine Arts, Models, Sculpture, and Plastic Art,—the description should specify—

- *a* The name of the Artist or Designer, if the same should not be the Exhibitor.
- *b* The uses.
- *c* The novelty in design or treatment.
- *d* Superiority of execution.
- *e* New use of known Materials.
- *f* Use of new Materials.
- *g* New combinations of Materials.
- *h* Improvements in processes of production.
- *i* The place where the article is made.
- *j* If the Article is repeated in quantities for trade, the price at which it is sold by the Producer should be stated for the information of the Jury only.
- *k* Any particular features which the Exhibitor desires should be noticed by the Jury.

[* The Forms were printed on four different coloured papers, so as to simplify references, White was adopted for Raw Materials, Blue for Machinery, Red for Manufactures, &c., Yellow for Fine Arts.]

Exhibitors are required to make their descriptions as brief as possible, and to confine them as much as possible to facts.

TWO COPIES, in the English language, of the Exhibitor's descriptions, both being precisely alike, should be furnished as soon as possible and at latest on or before 31st. January. They should be addressed to M. D. Wyatt, Esq., Secretary of the Executive Committee.

Her Majesty's Commissioners have consented to allow Illustrations of the Articles exhibited to be inserted in the large Catalogue, at the request and at the expense of the Exhibitors, after approval by the Executive Committee. Exhibitors desirous to avail themselves of this privilege must communicate their wishes IMMEDIATELY. Communications are to be addressed to M. D. Wyatt, Esq., Secretary of the Executive Committee, at the Building for the Exhibition, Hyde Park, London, marked on the outside "Catalogue."

Exhibitors who may desire that their names and the description of their productions should appear in any French and German Editions of the Catalogue which may be authorized, are requested to furnish at the same time with the two *English* copies, a French and German transaction of the descriptions, made out in all respects as before prescribed.

REFRESHMENTS IN THE BUILDING.

151. Her Majesty's Commissioners have considered that it will conduce to the convenience of visitors to permit light and moderate refreshments to be obtained and consumed in *certain prescribed parts* of the Building; but that it would be inconsistent with the nature of the Exhibition to allow the Building to assume the character of an Hotel, Tavern, or Dining-rooms.

In the Central Area will be sold Ices, Pastry, Sandwiches, Patties, Fruits, Tea, Coffee, Chocolate, Cocoa, Lemonade, Seltzer and Soda Water.

In the Eastern and Western Areas will be sold Bread, Butter and Cheese, Tea, Coffee, Chocolate, Cocoa, Ginger Beer, Spruce Beer, and similar drinks; together with the other articles in the Central Area.

No refreshments are to be taken out of the Areas.

No wines, spirits, beer, or intoxicating drinks can be sold or admitted.

PRICES OF ADMISSION.

152. HER MAJESTY'S COMMISSIONERS for the Exhibition of 1851 have had under their consideration the regulations respecting the admission of Visitors, which it appears to them necessary to adopt for the effectual accomplishment of the purposes of the Exhibition.

Their attention has been principally directed to the following points:—

1st. The necessity of making such arrangements as shall secure the convenience of the public visiting the Exhibition, whether for study and instruction, or for the more general purposes of curiosity and amusement.

2nd. The due protection and security of the property deposited in the Building.

3rd. The effective control over the number of Visitors, while the servants and officers intrusted with the maintenance of order and regularity in the Building are comparatively inexperienced in their duties.

4th. The necessity of maintaining the self-supporting character of the Exhibition, and of defraying the liabilities incurred.

5th. The desire of the Commissioners to render the Exhibition accessible to all persons at the lowest possible charge, and with the least delay which a due regard to the preceding considerations will admit.

152*a*. The following are the cases in which an exception to the general rule will be made, and free admissions granted:—

1st. Persons in the employment of, and provided with tickets issued by the Executive Committee, such as the heads of sectional departments, the clerks, the watchers, the cleaners, the police, the Sappers and Miners.

2nd. Servants of Foreign Commissions and of Exhibitors admitted under the provisions of the 14th Decision of the Commissioners for the purpose of watching the goods sent by their employers, or explaining them to visitors; such servants being provided with tickets issued by the Executive Committee under strict regulations to be hereafter laid down.

3rd. The press, both metropolitan and provincial, the tickets in both cases admitting the editor or his representative.

4th. The Juries, on the production of tickets that have been issued and registered by the Executive Committee, on certain days to be hereafter fixed by the Executive Committee.

[The above rules were deemed necessary to get rid as nearly as possible of a free list, which might have opened the door to much abuse and inconvenience. In order to enable the Commissioners and Executive Committee to be in a position to enforce the rules, both the Commissioners and the Executive Committee themselves purchased season tickets. In practice these rules were however found too stringent, and the Executive Committee were compelled in many cases to make use of a discretionary power, granted to them by the Royal Commissioners, to admit gratuitously many persons not specified in the rules. As the Exhibition advanced, any Exhibitor who showed to the Executive Committee that it was desirable that he should have access to his goods, was granted free admittance. With respect to paragraph 4, it may be added that the Jurors were admitted whenever they presented themselves.]

152*b*. Having these objects in view, Her Majesty's Commissioners have determined to adopt the following regulations:—

The Exhibition will be open every day (Sundays excepted).

The hours of admission and other details will be announced at a subsequent period.

The charges for admission will be as follows:—

	£.	s.	d.
Season Tickets for a Gentleman	3	3	0
Season Tickets for a Lady	2	2	0

152*c*. These Tickets are not transferable; but they will entitle the Owner to admission on all occasions on which the Exhibition is open to the Public.

152*d*. The Commissioners reserve to themselves the power of raising the price of the Season Tickets when the first issue is exhausted, should circumstances render it advisable.

152*e*. On the first day of exhibition Season Tickets only will be available; and no money will be received at the doors of entrance on that day.

	£.	*s.*	*d.*
On the second and third days the price of admission on entrance will be (each day)	1	0	0
On the fourth day of exhibition	0	5	0
To be reduced on the twenty-second day to	0	1	0
From the twenty-second day the prices of admission will be as follows:—			
On Mondays, Tuesdays, Wednesdays, and Thursdays, in each week	0	1	0
On Fridays	0	2	6
On Saturdays	0	5	0

152*f*. No change will be given at the doors. This regulation is necessary to prevent the inconvenience and confusion which would arise from interruption or delay at the entrances.

152*g*. Should experience in the progress of the Exhibition render any alteration in these arrangements necessary, the Commissioners reserve to themselves the power of making such modifications as may appear desirable, of which due and timely notice, however, will be given to the Public.

[On the 31st of July, the prices of Season Tickets were reduced to £1 10*s*. for a Gentleman, and £1 for a Lady; and on the 9th of August, the price of admission on Saturdays was reduced to 2*s*. 6*d*. The reduction in price did not cause any large sale. See Appendix XVII.]

RULES FOR VISITORS TO THE EXHIBITION.

153*a*. The Exhibition will open at 10 A.M., except on Saturdays, when it will open at 12. It will close every evening at 6 P.M., at which hour bells will be rung in the building.—N.B. The Commissioners reserve to themselves the right of altering the hours as they may find requisite.

[It was found desirable to keep the Exhibition open until 7 during the early part of the summer. As the season advanced, the bell was rung at 6, and later still, ten minutes before sunset. *One bell*, though a large one, which was tried at first, was found totally powerless in such a crowd, and the Executive Committee were glad to take advantage of the numerous bells sent for exhibition to give notice of the hour of closing.]

153*b*. Carriages must go to the South and West entrances. They may drive up close to the outside of the iron railing.

Foot visitors may enter at the South, West, and East entrances, the latter being reserved for them.

Season tickets will pass through all the entrances.

[Eleven persons were at first required for the inspection of the season tickets.]

There are several pay offices at each entrance.

[The means of checking the receipts that were adopted were *self-registering turn-tables*, of which eight were put up at the east end, seven at the south, and three at the west. These eighteen places for taking the money were found sufficient, except on about twenty occasions, when it was requisite to allow the general public to pass in by the season-ticket entrances, two persons being stationed at each to take the money. Such pressure seldom lasted more than half an hour.]

There are several exit doors at the sides and ends of the building, so marked on the plan.

No persons will be allowed to go out by the entrance doors, or enter by the exit doors.

[It was found impracticable to induce the public to go out at the exit doors, the greatest number of persons going out by the same door they came in at. Conspicuous placards were put up, pointing to the exit doors, but were only partially successful.]

153*c*. The Building is divided into Areas, (*i. e.*, spaces of 24 feet square between 4 columns) which are marked on the plan, by letters along the end and by numbers along the side of the Building: these letters and numbers are marked on every column in white letters at about 7 feet from the ground. The articles are divided into Classes and Nations, and the Names of Classes and Nations are given on the Plan, and marked upon the iron girders of the Building.

[This marking was useful to the staff of the Executive Committee during the arrangements, as well as during the Exhibition, but not much to the Public.]

The Catalogue is classified on the same system. The numbering of articles is generally from West to East by classes. Visitors are requested, in going through the Building, to follow as much as possible the course of the sun, *i. e.*, to go from the left towards the right in the passages and courts, in order to prevent confusion. Plans of the Building are placed in different parts of it.

[The circulation of the visitors in any particular direction was never successfully enforced, except in a few particular cases, before objects of great attraction.]

153*d*. Visitors are particularly requested not to touch any of the articles.

153*e*. Official Catalogues may be purchased of the Contractors, Messrs. Spicer and Clowes, at the different entrances. Abridged Edition, Price 1*s*.

153*f*. Refreshments of a light description are provided according to an authorized scale of charges hung up in the rooms. The first class room is in the centre transept; other rooms are on the West and East sides.

153*g*. Two waiting-rooms and water-closets, &c., are provided adjoining the different refreshment rooms, and a moderate charge is made for the use of them.

[In reference to the washing and retiring rooms, see Appendix XXX.]

153*h*. The Commissioners have not absolutely prohibited visitors from bringing sticks and umbrellas into the building, but they reserve the right of doing so if necessary. The public are requested to abstain from bringing them as much as possible, and on no account whatever to touch any article with them.

[Though not at first contemplated, it was found advisable for the public convenience to establish places at the entrances to take charge of coats, umbrellas, &c., and though the high charge of 2*d*. was fixed on purpose to discourage it, upwards of three thousand articles were sometimes deposited in one day, and many more would have been deposited, had there been accommodation, which it was not possible, after the general arrangements had been completed, to find. As it was, about 350 square feet were fitted up. The daily receipts can be seen on reference to Appendix XXXIII.]

153*i*. No dogs will be admitted.

153*j*. Inquiries for articles lost or found should be made at the Police Office at the Prince's Gate, opposite the South entrance.

153*k*. No gratuities must be given to any officer or servant of the Exhibition. Visitors are requested not to offer any, as the acceptance renders the receiver liable to dismissal.

153*l*. The stalls, &c., at which exhibitors have provided attendants are indicated by the word "ATTENDANCE."

[It was found difficult, and not very important, to enforce this regulation.]

153*m*. No article is allowed to be sold in the Building, except the Official Catalogues, the Medals struck at the press, refreshments, and bouquets of flowers; and no other articles are allowed to be taken out without authority.

153*n*. No person going out will be re-admitted except upon a second payment.

[This rule was found very beneficial, and practically of little or no inconvenience to the public.]

153*o*. No drawing of any article exhibited can be taken except upon a written authority from the proprietor, countersigned by an officer of the Executive Committee.

STANDING ORDERS DURING THE TIME OF THE EXHIBITION.

153*p*. All articles which are found should be taken to the Police Office at Prince's Gate, opposite the South Entrance; where all inquiries for articles lost should be made.

153*q*. Visitors are particularly requested not to touch any article.

154. For the maintenance of good order, the Executive Committee have deemed it expedient to divide the Exhibition into Districts, each under a Superintendent with a suitable number of Assistants: and everything which requires immediate attention is to be referred, in the first instance, to the Superintendents, who will, if in their power, immediately attend to such application; and, if not in their power, report to Capt. Owen, R.E., the General Superintendent.

The principal duties of the District Superintendents will be as follows:—

1. To make a daily inspection of every part of their district.
2. To see that the goods of Exhibitors are kept properly cleaned and arranged.
3. That the Catalogue Numbers and other Tickets are securely fastened to the articles to which they refer.
4. That no articles are to be admitted without proper permission first obtained.
5. That no accumulation of dust, shavings, or rubbish of any kind, be permitted under the counters, or on the hangings, girders, columns, and mouldings, within their district.
6. To keep a register of all accidents or damages from any cause, either to the Building or the goods exhibited.
7. To report every leakage which occurs within their district.
8. To keep a book open for complaints from the Exhibitors or the public generally.
9. To see to the punctual attendance and good conduct of their subordinates.

The Superintendents of Classes on the British side will communicate their wishes to the District Superintendents, who will be glad at all times to receive their advice and the benefit of their experience.

RULES RELATIVE TO TAKING ARTICLES INTO OR OUT OF THE BUILDING.

[These rules were found necessary to prevent the unauthorized introduction and abstraction of articles exhibited, it being a rule that articles should not be removed before the close of the Exhibition.]

155*a*. No articles whatever can leave the Building, or enter it, except by the Western entrance on the British side, or by the exit door A on the Foreign side.

155*b*. No articles can be permitted to be taken out of the Building, or brought into it, without the express permission of the Executive Committee, and in order to bring this very important question as much as possible under control, the Executive Committee have empowered the following of their Officers only, to grant such permissions on their behalf:—

Captain Owen, R.E., *General Superintendent.*
Mr. Belshaw, *Assistant General Superintendent.*
Mr. Wylde, }
Mr. Harman, }*Superintendents of Districts* 9 *and* 10 *on Foreign Side.*

[It was found requisite to give this authority to the two latter gentlemen in consequence of the incomplete state of the arrangements on the Foreign side.]

155*c*. In case the removal of any Foreign or Colonial article be unavoidable, the order must be countersigned by an Officer of the Custom-house.

155*d*. The Police are requested to aid the Officers of the Executive Committee in a rigid enforcement of this order.

155*e*. The attention of visitors is earnestly called to this order, as persons carrying packages of any description into or out of the Building, which are not strictly for personal use, may find themselves subjected to serious inconvenience and delay.

RULES FOR THE REMOVAL OF BRITISH ARTICLES NOT LIABLE TO CUSTOMS DUTIES.

156. The removal of the articles will commence on Thursday the 16th October, and the following are the rules which the Executive Committee have laid down with the view of promoting the security of goods, and affording the greatest convenience to the Exhibitors.

157. The doors will be opened at 8 o'clock in the morning, when preparations for removal may be commenced. But in order that articles may not be improperly removed until it may be convenient to the majority of the Exhibitors to be present, no goods will be permitted to be taken out of the Building before 9 A.M., or after sunset, when the bells will be rung.

158. A permit to remove articles will be issued to every Exhibitor. This will admit himself or his Agent and the requisite number of workmen, for which he must make arrangements with the District Superintendent. It will be absolutely necessary that the Exhibitor or his agent attend in person to admit his workmen. The permit will be dated, and the articles must be removed within the period entered on the Permit, and through that exit door only which is marked on the Permit. If owing to its bulk any article cannot be taken out by the exit door appointed, then the Exhibitor must obtain from the District Superintendent a special pass for the West door.

[The form of ticket alluded to in the above decision was as follows :—

British Exhibitor's Permit to Pass In or Out of the Building, through

Door ( ) only.

I hereby empower the Bearer of this Permit to Remove from the Building any Articles Exhibited by me, and I agree to conform to all the Rules of the Executive Committee respecting the Removal of Articles from the Exhibition.

______ *Exhibitor to Sign here, before the Card is presented.*

______ *Signature of authorised Agent.*

Class ______ No.

Upon entering, the Exhibitor, or his Agent, will be required to sign his Name in a Book.
Before taking his Articles out he must deliver a receipt for the same.

Available only from 16th October to the ______________.

Reverse.

Issued to ______ by ______, *District Superintendent.*

The number of Workmen which this Pass will admit must be arranged by a Personal Application from the Exhibitor or his Agent to the District Superintendent, who will then fill in the following particulars :—.

This Pass will admit during the period for which it is issued * ______________ Assistants, besides the Bearer.

______________, *District Superintendent.*

* The number of Assistants to be inserted in words.

This card was sent to each Exhibitor by post before the close of the Exhibition.]

159. Every Exhibitor, or his authorized agent, in taking out articles must fill up a receipt and deliver the same to the Officer on duty at the exit door. Forms of receipt will be given by the District Superintendents. The Permit must also be given up when the Exhibitor has removed his goods.

160. In order to provide as far as may be possible against confusion and accidents in the removal in some cases a rotation will be established for the removal of each Exhibitor's

articles, and the Permits to remove articles will be dated accordingly. If an Exhibitor fail to remove his goods within the period assigned to him, his articles must remain until the turn for their removal again arrives.

161. Whatever aid the Executive Committee may be able to give in the removal of the Articles, is to be considered as auxiliary only to the arrangements made by the Exhibitors themselves for the removal of their own articles, and the Exhibitors or their agents should therefore bring with them force sufficient to ensure the security and safe and speedy removal of their goods.

162. Among so many thousand Exhibitors, and so great a variety of articles, it will obviously be impossible to identify every labourer employed by Exhibitors with the articles which he may claim to be employed in packing; and although every care will be taken to prevent errors and losses, still it must be clearly understood that no responsibility for losses rests with the Royal Commissioners or Executive Committee; and that it rests entirely with the Exhibitors themselves. The Executive Committee particularly recommend every Exhibitor or his agent to attend as early as possible and make due arrangements to insure the proper security and removal of his articles; and it is suggested that it will be prudent that at every important stall the Exhibitors should appoint a trustworthy person always to remain in charge of his articles until they are finally removed.

163. The Executive Committee think it right to repeat, for the information of Exhibitors, the following decisions of Her Majesty's Commissioners, dated May, 1850: (*See Decisions*, 12, 13, 21, 61).

Due notice was accordingly given respecting all packing-cases which the Exhibitors neglected to take away before the opening, and consequently the Executive Committee did not undertake the charge of any packing-cases whatever.

164. The conveniences for packing in the Building are limited, and can only be provided in certain parts of it, and if performed in the Building, must entail delay, and all those casualties consequent on delay. Exhibitors are therefore particularly recommended in all cases, where it may be possible, to remove light and valuable articles without repacking them in the Building. It is desirable, to prevent accidents, that all small glass cases should be removed within the three first days namely—16th, 17th, and 18th October.

165. In order to give the utmost accommodation to Exhibitors who desire to take advantage of the advice contained in the preceding paragraph, no packing-cases can be allowed to be introduced into the Building until Monday the 20th October.

166. All packing-cases must be brought to the West end, and be marked with the Exhibitor's name and the Class and Number to which they belong, or they will not be admitted within the Building. Packing-cases left empty for more than forty-eight hours will be liable to be taken out of the Building.

167. As the removal of articles cannot be delayed to an indefinite period, and as many articles may possibly be left unclaimed, a final day for removing articles will be fixed by public advertisement. All articles left remaining in the Building after such notice has been given will be appropriated as the Commissioners may direct, and if sold, the proceeds will be applied to the general funds.

RULES FOR THE REMOVAL OF FOREIGN GOODS.

168. During the removal, the Executive Committee will continue, as heretofore, to communicate only with the Foreign Commissioners and their recognised deputies. The Exhibitors are therefore requested in all cases to apply to the latter for information or assistance.

169. Each Foreign Commissioner will be at liberty to make any arrangements he pleases within the space occupied by his country, subject to the regulations of the Custom-house authorities.

170. The empty packages will be received at the Exit Doors on the North and South sides of the Building. Those doors, when not required for that purpose, will be kept locked.

171. Every package, when packed, will be removed by the servants of the Executive Committee to the East entrance to be loaded.

172. No package can be removed without the permission of the Customs, and a written order from the licensed Custom-house Agent of the country to which the package belongs, which order will be initialled by the Customs' locker at the door, and given up on the delivery of the goods.

173. The workmen employed by the Foreign Commissioners will enter by the Exit door A, at the East end of the Building.

174. The Foreign Commissioners and their Staff can enter by that door, or by the South Central Entrance, as may be most convenient to them.

175. All personal or written demands for assistance or information to be made to Captain Owen, R.E., at his office in the Swiss Division.

APPENDIX No. III.

RETURN showing the NUMBER of LETTERS Received and Despatched by the EXECUTIVE COMMITTEE from October 1849, to the close of the Year 1851.

YEAR.	MONTH.	NUMBER OF LETTERS REGISTERED AS RECEIVED.		NUMBER OF LETTERS DESPATCHED, INCLUDING CIRCULARS.		AMOUNT PAID FOR POSTAGE AND PARCELS.	
		Per Month.		Per Month.		£. s. d.	£. s. d.
1849	October -	80		55		6 13 8	
	November	177		150		9 2 11	
	December	762		1,103		20 6 6	
			1,019		1,308		36 3 1
1850	January -	458		611		12 0 7	
	February	503		550		6 19 1	
	March -	630		2,368		48 17 1	
	April - -	1,012		2,100		43 15 8	
	May - -	1,101		4,600		68 11 2	
	June - -	682		3,087		47 18 1	
	July - -	630		1,868		24 4 9	
	August -	445		1,944		26 8 11	
	September	649		2,306		23 2 0	
	October -	1,466		2,658		27 4 11	
	November	1,371		3,992		39 5 5	
	December	1,922		2,906		39 5 1	
			10,869		28,990		407 12 9
1851	January -	3,279		11,250		78 6 7	
	February -	5,558		13,951		97 16 10	
	March -	6,200		9,843		69 0 11	
	April - -	4,032		7,737		74 14 8	
	May - -	2,541		6,470		44 15 1	
	June - -	1,775		7,090		46 18 7	
	July - -	1,770		12,352		81 12 6	
	August -	2,833		14,253		122 11 7	
	September	2,560		7,614		67 3 5	
	October -	6,539		36,483		276 3 2	
	November	2,423		3,004		41 11 1	
	December	515		1,286		19 4 1	
			40,025		131,333		1,019 18 6
	Total - -	- -	51,913	- -	161,631	- - -	1,463 14 4

The greatest number registered on the same day was 522, on the 1st March 1851, during the correspondence relative to space and arrangement. The greatest number despatched was 7,835, on the 9th October 1851, when sending out cards of admission to Exhibitors and others for the closing of the Exhibition.

Arrangements were sanctioned by the Postmaster-General to have bags made up and despatched direct to the General Post Office three times a-day. To give the public, Exhibitors, and others, who had business to transact, the benefit of this arrangement, a letter-box was fixed in the Transept, in which, on an average, 400 Letters a-day were deposited. The letter-box used for this purpose formed part of the Belgian Exhibition, being an ornamental cast iron one, such as is in common use in the streets of the towns of Belgium and other countries on the Continent. (Official Catalogue, Belgium, 363.)

JAMES J. WADE, *Registrar.*

N.B.—In addition, the number of Letters Received and Despatched from the Office of the Royal Commissioners to the same date was:—

	Received.	Despatched.
1850 -	740	780
1851 -	820	1,176
Total -	1,560	1,956

H. R. LACK.

APPENDIX No. IV.

CATALOGUE of a COLLECTION of PRINTED PAPERS illustrative of the Operations of the ROYAL COMMISSION, the EXECUTIVE, FINANCE, BUILDING, LOCAL, and other COMMITTEES in carrying on the Business of the EXHIBITION.

I. Early Proceedings in connection with the Society of Arts.

No.	*Date.*	*Nature of Document.*
	1847	Charter incorporating the Society.
		Its constitution; bye-laws.
		List of officers (1850).
	7 Nov. 1849	Prizes awarded by the Society in 1849.
	8 Feb. 1850	Statement of proceedings preliminary to the Exhibition
	17 July, 1849	Minutes relative to a National Collection of Arts and Manufactures.
7	14 July, „	Minutes of Meeting at Osborne.
8	1 Aug. „	Ditto (*Another form*).
9		Form of Letter appointing persons to make preliminary inquiries.
10	Sept. „	Report of the Eleventh French Exposition by M. D. Wyatt.
11		Plan of ditto.
12		Report made to H.R.H. Prince Albert on the willingness to support periodical Exhibitions by Henry Cole and Francis Fuller.
	Oct.	Ditto ditto with Appendix No. 4.
	14 Nov.	Further Report to H.R.H. Prince Albert by M. D. Wyatt.
	5 Oct.	Report to H.R.H. Prince Albert by H. Cole and F. Fuller (small size).
16		Circular announcing a Deputation.
17		Suggestions for Prizes to Exhibitors.
18	Sept.	Ditto for Raw Produce.
19	7 Nov.	Contract between the Society and Messrs. Munday (large).
20		Ditto ditto (small).
21		Abstract of ditto.
22		Ditto ditto (another form).
23	19 Dec.	Correspondence on termination of Contract.
		Ditto ditto (another form).

II. Formation of the List of Promoters.

No.	*Date.*	*Nature of Document.*
25	Nov. 1849	Card presented by persons deputed to visit firms in London.
26	30 Nov. „	Circular to Promoters (Peers).
		Ditto ditto (Commoners).
28	26 Dec. „	Second Circular to Promoters.
29	5 Dec. „	List of London Promoters.
30	20 Mar. 1850	Circular to Promoters.
31	7 Mar. „	Circular relative to visiting different towns.
32	Nov. 1849	Autographs of early Promoters.
33	26 Nov. „	List of Promoters.
34	5 Dec. „	Ditto ditto.
35	8 Nov. „	Card inviting persons to become Promoters.
36	11 Feb. 1850	Signature book for Promoters.

III. The Royal Commission and their Decisions.

No.	*Date.*	*Nature of Document.*
37	3 Jan. 1850	Copy of the Royal Commission.
38	„ „	Ditto for post.
39	14 Jan. „	Ditto in pamphlet.
40	„ „	Ditto as a Placard.
41	„ „	Ditto ditto (*Another.*)
42	1850	Circular to mayors.
	„	Extract from Decisions (hand bill).
	„	Ditto ditto (very large).
	„	Decisions (1st form).
	„	Ditto (2nd form).
	Mar. „	Ditto ditto 2nd edition.
	20 Apr. „	Ditto ditto 3rd edition.
	Sept. „	Ditto ditto 4th edition.
	Jan. 1851	Ditto ditto 5th edition.
	Mar. 1850	Sundry points of principle.
	„	Statement on Classification.
	20 Apr. „	Letter to Mayor of Birmingham on affixing Exhibitors' names to articles exhibited.
54	Mar. „	Decisions on Prizes.
55	Apr. „	On the security, &c., of articles exhibited.
56	„	Regulations regarding Machinery in motion.
57	Apr. „	Estimated Receipts and Expenditure.
	18 May „	Circular to Railway Companies.
59	18 Aug. 1851	Correspondence with the Treasury on retention of Building.

IV. Organization of Local Committees, and Correspondence with them exclusive of the Space question.

No.	*Date.*	*Nature of Document.*
60	150	Appointment of Local Commissioners.
61		Circular to Mayors on convening public meetings.
		Circular requesting individuals to apply for information to the Local Committees.
63		Circular enclosing Documents.
64		Circular forwarding copy of any printed Document.
65	18 Mar.	Circular forwarding Decisions.
66	Apr.	Circular on the delivery of Lectures.
67	23 Apr.	Circular on furnishing pamphlets to reading-rooms.
68	Apr.	Circular forwarding Lord Stanley's Speech.
69	30 May	Circular by Leeds Committee.
70	5 June	Circular enclosing copies of those issued by Bath and Leeds.
	July	Circular on articles marked "not for competition."
	3 July	Circular enclosing revised Decisions.
		Circular enclosing Memorandums.
	May	Circular from Special Commissioners.
	1 Sept.	List of Local Committees.
	12 Dec.	Circular on Division of Correspondence.
	Oct.	Circular to members of Committees on their admission to the Works.
	Jan. 1851	Circular relative to the opening.
79	10 Jan.	Circular relating to unauthorized persons and documents.
80	21 Jan.	Circular on various subjects.
81	25 Jan.	Address adopted at Dublin.
82		Address of Bath Committee.
83	9 May 1850	Letter from Bath Committee, stating that workmen subscribed towards the Exhibition.

Catalogue of Printed Documents—*continued.*

No.	*Date.*	*Nature of Document.*
84	1850	Letter of Allotment (Bradford Committee).
85	23 Apr. „	Resolutions of Meeting at Barnard Castle.
86	„	Subscription Form issued by Rugby Committee.
87	„	Circular enclosing the same.
88	17 Sept. 1851	Resolutions of the Bolton Committee on commemorating the Exhibition.
89	„	Circular of the Chatham Committee requesting subscriptions.
90	3 July 1850	Resolution of Marylebone Committee in favour of site in Hyde Park.
91	26 Feb. „	Circular for a public meeting at Kensington.
92	Feb. „	Petition of Kensington Committee in favour of site in Hyde Park.
93	„ „	Notice from Kensington Committee relating to Lodging-houses for Visitors.
94	„ „	Notice of Meeting of the Chelsea and Belgrave Association.
95	„ „	Petition from Brompton Committee in favour of site in Hyde Park.
96	5 Sept. „	Circular to Committees on staple commodity of the District.
97	23 Aug. 1851	Circular asking for names of Members of Committees.
98	„	[Circulars, &c., printed by Birmingham Committee.]
99	4 Apr. 1850	Circular inviting subscription.
100	25 May „	Circular relative to subscription.
101	8 July „	Circular requesting amount of subscription to be forwarded.
102	10 Apr. „	Circular enclosing form of return for space.
103	25 Sept. „	Circular requesting intending exhibitors to send in returns.
104	26 Nov. „	Circular relative to space.
105	Nov. „	Certificate of allotment of space.
106	Nov. „	Plan showing space allotted to each exhibitor.
107	15 Apr. „	Circular relative to manufacturers' names being attached to articles exhibited.
108	7 May „	Circular on the same subject.
109	24 June „	Correspondence and Resolutions relative to the same.
110	June 1851	Card of Invitation.

V. Proceedings in the Metropolis.

No.	*Date.*	*Nature of Document.*
111	17 Oct. 1849	Invitation card from Lord Mayor to receive deputation from Society of Arts.
112	1850	List of Local Commissioners.
113	17 Aug. „	Circular convening Meeting of Metropolitan Committees.
114	26 Sept. „	Circular convening Meeting of Local Commissioners.
115	16 Oct. „	Circular to Local Commissioners.
116	28 Aug. „	Ditto (*Another*).
117	13 Nov. „	Circular to Local Committees.
118	Nov. „	Suggestions for forming Committees of Selection and Rejection.
119	Feb. 1851	Circular to Exhibitors whose vouchers were forwarded too late by Council of Chairmen.
120	„	List of Local Commissioners nominated by the City of London.
121	Oct. 1849	Circular on promoting the Exhibition.
122	3 June 1850	Circular on appointing Local Commissioners.
123	3 June 1850	Circular on appointing Local Commissioners for particular Departments.
124	13 Dec. „	Allotment of space granted to Metropolis.
125	„	List of Conditional Allotments (Class XVII.)
126	18 Dec. „	Circular on revising Allotments in Class XVII.
127	„	List of Revised Allotments (Class XVII.)
128	21 Mar. „	Notice on affording information to City authorities.
129	27 Mar. 1851	Allotments of Class V.
130	26 Sept. 1850	Notice of Meeting of Local Commissioners.
131	„	Notice requesting attendance at Meeting of Westminster Committee.

VI. Finance and Collection of Subscriptions.

No.	*Date.*	*Nature of Document.*
132	9 May 1851	Daily return of receipts.
133	13 June „	Notice of paying in subscriptions.
134	5 June „	District Pay Lists.
135	11 Nov. „	Letter to Foreign Commissioners relative to gratuities.
136	25 Oct. „	Circular relative to gratuities.
137	Oct. „	Ditto ditto.
138	14 Jan. 1850	Notice of public subscription being opened.
139	7 Feb. „	Circular on subscriptions from promoters.
140	„	Circular on subscriptions (general).
141	„	Form of cheque for subscribers.
142	„	Ditto (*Another*).
143	„	Form of fortnightly return of subscribers.
144	„	Circular acknowledging Return of subscriptions.
145	25 Mar. „	Circular calling for fortnightly returns of subscriptions.
146	„	Forms of weekly report of the Subscription Committee.
147	„	Return of subscriptions paid to bankers and others.
148	18 Apr. „	Form of receipt for money lodged in the Bank of England.
149	16 Apr. „	Circular to Local Committees on subscriptions.
150	„	Circular to Local Committees acknowledging subscriptions.
151	„	Circular to Local Committees relative to subscriptions.
152	4 Nov. „	Ditto (*Another*).
153	„	Ditto (*Another*).
154	„	Circular to Local Committees to correct list of subscriptions.
155	9 Mar. „	Subscriptions (Ladies' Committee).
156	20 May „	Form of List of Subscribers' names.
157	19 Feb. „	Card stating that Thos. Edlin will collect subscriptions.
158	„	Ditto ditto (Henry Vernon).
159	„	Ditto ditto (W. B. Simpson).
160	18 Apr. „	Form of receipt for money lodged to account of Treasurers of Westminster Committee.
161	18 Feb. „	Circular on collecting subscriptions in Westminster.
162	19 Feb. „	Ditto ditto ditto.
163	22 Feb. „	Resolution relating to subscriptions and list of ditto.
164	19 Mar. „	List of subscriptions (Kensington).
165	21 Mar. „	Ditto (*Another*).
166	4 Apr. „	Ditto (*Another*).
167	23 Apr. „	Ditto (*Another*).
168	17 Apr. „	Circular relative to subscriptions.

Catalogue of Printed Documents—*continued.*

VII. Notices and Reports of Public Meetings and Lectures.

No.	*Date.*	*Nature of Document.*
169	21 Feb. 1850	Public Meeting at Willis's Rooms.
170	19 Mar. „	Ditto Kensington.
171	4 Apr. „	Lecture at Lambeth.
172	„ „	Ditto Literary Institution, Kensington.
173	22 Apr. „	Ditto John-street, Fitzroy-square.
174	1 May „	Ditto Mechanics' Institution, Windsor.
175	2 May „	Ditto Literary Institution, Islington.
176	3 May „	Meeting at Town Hall, Woolwich.
177	6 May „	Lecture at Literary Institution, Hackney.
178	„ „	Ditto ditto, Hampstead.
179	7 May „	Ditto Russell Institution, Great Coram-street.
180	8 May „	Ditto Literary Institution, Marylebone.
181	13 May „	Ditto National Schools, Stockwell.
182	14 May „	Public Meeting at Gravesend.
183	15 May „	Lecture at Literary Institution, Rotherhithe and Bermondsey.
184	16 May „	Ditto ditto, Aldersgate-street.
185	17 May „	Public Meeting at Leeds.
186	22 May „	Lecture at Literary Institution, Blackheath.
187	23 May „	Ditto Sussex Hall, Leadenhall-st.
188	„ „	Ditto Cubitt's Works, Pimlico.
189	27 May „	Ditto Mechanics' Institution, Finsbury.
190	28 May „	Ditto Literary Institution, Tottenham and Edmonton.
191	31 May „	Ditto ditto, Southwark.
192	3 June „	Ditto ditto, Stoke Newington.
193	5 June „	Public Meeting at Ramsgate.
194	6 June „	Ditto Town Hall, Folkestone.
195	7 June „	Ditto Brompton.
196	„ „	Lecture at Literary Institution, Chelsea.
197	10 June „	Ditto Whittington Club, Strand.
198	11 June „	Public Meeting at Chatham.
199	„ „	Ditto Birmingham.
200	14 June „	Ditto Mr. W. Cubitt's, Gray's Inn-road.
201	15 June „	Ditto Holbeach.
202	17 June „	Lecture at Mechanics' Institution, Crutched Friars.
203	21 June „	Ditto Literary Institution, Clapham
204	22 June „	Public Meeting at Spalding.
205	27 June „	Lecture at Literary Institution, Westminster.
206	28 June „	Public Meeting at Eastern Counties Railway Station.
207	„ „	Ditto Harrogate.
208	29 June „	Ditto Messrs. Maudslay and Co.
209	2 July „	Ditto Boroughbridge.
210	9 July „	Ditto Leeds.
211	„ „	Lecture at Greenwich.
212	10 July „	Public Meeting at Ashford.
213	9 Aug. „	Ditto Ramsgate.
214 to 267	„	Syllabus for Lectures.
268	1849	Suggested Resolutions for Public Meetings.
269	7 Sept. „	Meeting at Dublin.
270	20 Sept. „	Ditto Maidstone.
271	17 Oct. „	Ditto Mansion House, London.
272	25 Jan. 1850	Ditto ditto (another size).
273	21 Feb. „	Resolutions for Westminster Meeting.
274	„ „	Speech at the Westminster Meeting.
275	21 Mar. „	Lord Stanley's Speech.
276	18 Apr. „	Meeting of Operatives at Bradford.
277	2 May „	Meeting in Marylebone.
278	2 May 1850	Mr. Cobden's Speech at Marylebone.
279	10 May „	Memorandum on Public Meetings in Agricultural Villages.
280	22 May „	Resolutions of the Royal Agricultural Society.
281	30 May „	Meeting at Derby.
282	3 June „	Speeches (Banquet at the Mansion House).
283	4 June „	Meeting at Woolwich.
284	26 Mar. „	Ditto Lichfield.
285	19 Mar. 1851	Ditto Wirksworth.
286	20 Mar. 1850	Ditto Kensington.
287	16 May „	Ditto Brentford.
		Ditto Chelsea.
288	12 Mar. „	Resolutions connected with the Spitalfields Silk Trade.
289	25 Oct. „	York Banquet (proposed arrangements).
290	18 Mar. 1851	Resolutions at Meeting at Leeds.

VIII. Pamphlets Printed and Circulated.

No.	*Date.*	*Nature of Document.*
291	13 Oct. 1849	The Spectator on Exhibition of 1851.
292	19 Dec. „	The Times on Exhibition of 1851.
293	„ „	Another copy, ditto ditto.
294	29 Dec. „	Extract from Journal of Design.
295	24 Apr. 1850	Precis of information from Abroad.
296	25 Apr. „	Short Statement on the nature and objects of the Exhibition.
297	3 May „	Suggestions to the Manufacturers of France by Baron C. Dupin.
298	7 May „	Reply of Right Hon. H. Labouchere to Mr. Arkwright.
299	21 May „	Speech of H.R.H. Prince Albert at the Mansion House.
300	„ „	Ditto (French).
301	„ „	Ditto (Italian).
302	„ „	Ditto (Turkish).
303	24 May „	Extract from the Times, Observations of a London Manufacturer.
304	16 July „	Letter from Mr. Horsfall to the Mayor of Bradford.
305	„ „	The Times *v.* the Exhibition of 1851 (from the Daily News).
306	„	Notice upon the Exhibition in Welsh.
307	15 Oct. „	An Address by J. A. Hammersley, Esq., at Nottingham.

IX. Communications with Foreign Countries.

No.	*Date.*	*Nature of Document.*
308	12 Dec. 1850	Alphabetical List of Countries to whom space has been allotted.
309	„	Ditto (Colonies).
310	22 Mar. „	Letter to Lord Cowley on the German Federal Commission.
311 312	14 June „ to 10 July „	Correspondence with Messrs. Nicholson, Besley, and Co.
313	29 July „	Letter to Foreign Commissioners on Custom House Agents.
314	1 Aug. „	Ditto to Consuls.
315	July „	Information for Foreign Exhibitors.
316	3 Aug. „	Circular relating to Custom House Agents.
317	Nov. „	Circular on Allotment of Space.
318	13 Nov. „	Circular to Foreign Countries on Division into four Sections.
319	„ „	Another copy.
320	7 Dec. „	Circular on Reception of Articles and Catalogue.
321	11 Dec. „	Ditto ditto.
322	3 Jan. 1851	Circular on Allotment of Space.
323	29 June 1850	Notice of Meeting of French Manufacturers.
324	„	Relative to French Space.
325	25 Feb. 1851	Circular on Classification.

Catalogue of Printed Documents—*continued.*

X. First attempts at Classification.

No.	*Date.*	*Nature of Document.*
326	23 Sept. 1850	Memorandum on Raw Materials.
327	30 Jan. "	Notice on Mineral Products.
328	"	List of Articles (Vegetable Kingdom).
329	Feb. 1851	Ditto Machinery.
330	Feb. 1850	Ditto Manufactures.
331	24 Jan. "	Ditto Chemical Substances.
332	"	Ditto Fine Arts.
333	Feb. "	Ditto Raw Materials.
334	Sept. "	Ditto Drugs proposed to be exhibited.
335	"	Ditto Mineral Products of various Countries.
336	24 May "	Classified Lists.
337	22 Feb. "	Ditto.
338	"	Ditto.

XI. The Building.

No.	*Date.*	*Nature of Document.*
339	1 July 1850	Letter to the Treasury, and Memorandum on Site in Hyde Park.
340	"	Instructions for Tendering.
341	"	Notice relative to proposed Building.
342	"	Ditto (German).
343	"	Ditto (French).
344	"	Detailed Specification (A).
345	"	Ditto (B).
346	"	Ditto (Covering for Central Hall).
347	"	Ditto (C).
348	"	Ditto (D).
349	"	Ditto (E).
350	"	Ditto (F).
351	"	Ditto (G).
352	"	Ditto (H).
353	4 July "	Extension of time to Contractors.
354	9 May "	Report of the Building Committee.
355	4 July "	Plan of Site (plain).
356	"	Ditto (coloured).
357	"	Circular returning Design.
358	"	Circular (Admissions to Works).
359	"	Notice relating to Sets of Working Drawings.
360	"	Mr. Paxton's Design.
361	"	On the advantages of ditto.
362	16 Nov. "	Admission to Building.
363	11 June "	Ticket to View Plans.
364	Feb. 1851	Admission Notes for Peers and M.P.s to Private View.
365	19 July "	Queen's Warrant granting Site.
366	"	Circular Report about Building.
367	June 1850	Estimate (Building Contract) A, Part 1.
368	"	Ditto ditto Part 2.
369	"	Ditto ditto Part 3.
370	"	Ditto ditto Part 4.
371	"	Ditto ditto Part 5.
372	"	Ditto ditto Summary.
373	"	Ditto ditto, B, Part 1.
374	"	Ditto ditto Part 2.
375	"	Ditto ditto Part 3.
376	"	Ditto ditto Part 4.
377	"	Ditto ditto Part 5.
378	"	Ditto ditto Part 6.
379	"	Ditto ditto Summary.
380	"	Ditto ditto, System No. 1, No. 1.
381	"	Ditto ditto ditto No. 2.
382	"	Ditto ditto ditto Summary.
383	"	Ditto ditto, System No. 2.
384	"	Ditto ditto, System No. 3.
385	"	Ditto ditto, C, Part 1.
386	"	Ditto ditto Part 2.
387	"	Ditto ditto Part 3.
388	"	Ditto ditto Part 4.
389	"	Ditto ditto Part 5.
390	"	Ditto ditto Summary.
391	June 1850	Estimate (Building Contract) D, Part 1.
392	"	Ditto ditto Part 2.
393	"	Ditto ditto Part 3.
394	"	Ditto ditto Part 4.
395	"	Ditto ditto Part 5.
396	"	Ditto ditto Part 6.
397	"	Ditto ditto Summary.
398	"	Ditto ditto, E, No. 1
399	"	Ditto ditto No. 2.
400	"	Ditto ditto No. 3.
401	"	Ditto ditto No. 4.
402	"	Ditto ditto No. 5.
403	"	Ditto ditto No. 6.
404	"	Ditto ditto Summary.
405	"	Ditto ditto, F, Third Class Refreshment Court.
406	"	Ditto ditto Provisions.
407	"	Ditto ditto, G, ditto.
408	"	Ditto ditto Formation of Approaches, Footpaths, External Drains, &c.
409	"	Ditto ditto, H, Pipes, &c., for Supply of Water.
410	"	Ditto ditto Provisions.
411	"	Ditto Contingencies (Contracts generally).
412	"	Ditto Memoranda respecting Quantities.
413	"	Ditto Addenda.
414	"	Ditto Form of Tender.
415	"	Large Plan of Building.

XII. Space.

1. *Demands for Space.*

No.	*Date.*	*Nature of Document.*
416	23 Mar. 1850	Circular to Local Committees for Estimate of Space.
417	"	Forms of Original Demands.
418	23 May "	Circular to Committees on Demands.
419	22 July "	*(Another.)*
420	" "	Ditto to Committees which had not forwarded Demands.
421	1 Aug. "	Note relative to Space.
422	22 Aug. "	Circular to Committees, naming 31st October as latest day.
423	27 Aug. "	Ditto from Special Commissioners to eminent Manufacturers.
424	31 Aug. "	Ditto to some Committees on length of Spinning Mules.
425	28 Aug. "	Ditto to Committees on Demands.
426	4 Sept. "	Circular to Committees on Number of intending Exhibitors.
427	1 Nov. "	Ditto to Committees on Demands.
428	12 Oct. "	Ditto on Articles of great size.
429	14 Oct. "	Memorandum on the Decorations for the Building.
430	16 Oct. "	Circular referring to ditto.
431	1 Nov. "	Notice that no further demands for Space will be received.
432	" "	Circular to Local Committees on same subject.
433	20 Nov. "	Ditto on furnishing Lists of intending Exhibitors.
434	25 Jan. 1851	Ditto on Applicants too late for Space.
435	14 Nov. 1850	Note relative to Space.

2. *Allotment of Space to Local Committees.*

No.	*Date.*	*Nature of Document.*
436	Nov. 1850	Circular announcing Allotment to each Locality.
437	20 Nov. "	Decisions on Rejection and Selection of Articles.
438	"	Form used for Digesting Demands.
439	14 May "	*(Another.)*
440	17 Oct. "	Form of Voucher for Allotment.
441	Nov. "	Form of Abstract of Vouchers.

Catalogue of Printed Documents—*continued.*

No.	*Date.*	*Nature of Document.*
442	16 Dec. 1850	Circular (Instructions for filling-up Alphabetical List of Exhibitors).
443		Form of Alphabetical List (Metropolitan).
444	Jan. 1851	Ditto ditto (Country).
445	11 Dec. 1850	Circular to Committees on Allotment of Space.
446		Ditto confirming Decision of Local Committees in Case of Appeal.
447	30 Dec.	Ditto to Committees on Allotment.
448		(*Another.*)

3. *Examination of Allotments made by Local Committees.*

No.	*Date.*	*Nature of Document.*
449	4 Jan. 1851	Circular on returning of Voucher.
450	5 Feb.	Memorandum on reopening the question of Space.
451		Ditto on Alterations or Increase of Allotments.
452	29 Jan.	Circular cancelling Allotments for Articles inadmissible.
453		Ditto to the same effect.
454		Ditto, Division of Allotment.
455		Ditto, Declining Allotment
456	1 Mar.	Ditto to those whose Applications had been Lost or Mislaid.
457	11 Feb.	Ditto relative to Vouchers.

4. *Communications to Individual Exhibitors and others in determining their actual Place in the Building.*

No.	*Date.*	*Nature of Document.*
	1851	Circular to Exhibitors, that place Building is not yet fixed.
459	Jan.	Ditto on Extension of Time in particular cases.
460		Ditto ditto (*Another*).
461		Ditto to Local Committees on Arrangement and Catalogues.
462	1 Jan.	Ditto to Exhibitors on Arrangement of Articles.
463		List of 30 Classes.
464	24 Jan.	Circular on Position of Exhibitors in the Building (Metropolis).
465		Ditto ditto (Country).
466 to 495		Coloured Tickets used for sorting.
496	Feb.	Circular showing Position of Exhibitors in Building.
497		Memorandum on Arrangement of Counters on Ground Floor.
498		Ditto ditto (Galleries).
499	10 Feb.	Circular on fixing Place in Building.
500	20 Feb.	Ditto on Arrangement in Classes.
501	22 Feb.	Ditto requesting Return of Catalogue Forms.
502	6 Mar.	Ditto on Returning ditto.
503	5 Feb.	Receipt for Catalogue Forms.
504	5 Mar	Circular on Delay in Arrangement.
505	18 Feb.	Memorandum on Counters and Vertical Space.
506	6 Feb.	Ditto ditto (*Another*).
507		Ditto, sending Instructions for Fittings (Fox and Henderson).
508		Form of Order for Fittings (Fox and Henderson).
509		Form of Request for Certificate of Completion of Fittings (Fox and Henderson).
510	11 Feb. „	Note on same subject.
511	„	Questions by Manchester Deputation to Executive Committee.
512	13 Dec. 1850	Circular on Extension of Time for certain Classes of Goods.
513	24 Jan. 1851	Ditto on *Extension* of Time.
514	24 Feb. „	Ditto ditto (*Another*).
515	„	Ditto granting Extension of Time.
516	Mar. „	Ditto confirming Conditional Grants of Space.
517	4 Mar. „	Ditto relative to Dimensions of particular objects.

5. *Communications to particular Classes.*

No.	*Date.*	*Nature of Document.*
518	Feb. 1851	Circular to Exhibitors of Class I.
519	21 Jan. „	Ditto on Space and Arrangement of Machinery.
520	Feb. „	Ditto relative to Machinery.
521	„	Ditto to Exhibitors of Class VIII.
		Ditto ditto (*Another*).
522	Jan. „	Ditto on Allotment of Space for Agricultural Implements.
523	28 Nov. 1850	Form used by Exhibitors of Class IX. after Allotment of Space.
524	Jan. 1851	Ditto ditto (*Another*).
525	„	Form of Specification adopted by Agricultural Committee.
526	29 Nov. 1850	Circular forwarding ditto.
527	Dec. „	Letter to Agricultural Exhibitors.
528	Feb. 1851	Circular to Exhibitors of Class XXIII.
529	31 Jan. „	Ditto on Ornamental objects.
530	„ „	Ditto on Decorative Manufactures.
531	„ „	Ditto on Sculpture, Models, &c.
532	14 Feb. „	Ditto to Exhibitors of Class X.
533	28 Feb. „	(*Another.*)
534	„ „	List of Exhibitors of Class X.
535	„	Ditto ditto (Inside form).
536	Feb „	Alphabetical List of British Exhibitors.

XIII. Administration, during Arrangements.

No.	*Date.*	*Nature of Document.*
537	1850	Directory to 23rd August 1850.
538	Apr. „	Lithograph Ground Plans (large).
539	19 Oct. 1849	Circular Summoning Meeting of Executive Committee.
540	9 Oct. 1850	Reply to Applications for Employment.
541	„	Ditto ditto (*Another*).
542	„	Ditto ditto (*Another*).
543	„	Form (Engagement of Persons as Assistants).
544		Ditto acknowledging Receipt of Letter.
545	Apr. „	Ditto ditto (*Another*).
546		Ditto ditto (*Another*).
547		Reply to Applicants for Admission during the Exhibition.
548	28 Jan. 1851	Ditto to Applications for Personal Admission.
549	14 Sept. 1850	Form of Admission Ticket.
550	„	Admission Ticket till 1st February 1851, for Local Commissioners.
551	„	Ditto ditto for Metropolitan ditto.
552	„	Notice relative to Drafts on Letters.
553	16 Jan. 1851	General Notice relative to Letters.
554	27 Oct. 1849	Order for Newspapers.
555	„	Ditto for Advertisements.
556	9 Jan. 1851	Form for Persons requiring to see Executive Committee.
	„	Rules for Reception of Articles (United Kingdom).
558	2 Jan. „	Ditto ditto (Foreign and Colonial).
559	27 Jan. „	Memorandum relative to Foreign Packages.
560	6 Dec. 1850	Ditto ditto (Arrangements).
561	6 Feb. 1851	Rules for Admission of Persons and Reception of Articles during the Arrangements.
562		Notice appointing Captain Collinson and Captain Owen General Superintendents.
563	23 Dec. 1850	Notice relative to Reception of Goods on Foreign side.
564	„	Ditto ditto British side.
565	Aug. „	Endorsement Papers.
566	Mar. 1851	Pass Ticket for Packages.
567		Carman's Pass (Foreign).
568		Ditto (British

Catalogue of Printed Documents—*continued.*

No.	*Date.*		*Nature of Document.*
569	Feb.	1851	Application for Personal Admittance during Arrangements (British).
570	”	”	Ditto for an Assistant.
571	”	”	Ditto for Personal Admission during Arrangements (Foreign).
572	”	”	Form of Circular granting Admittance during Arrangements.
573	”	”	Notice on Fitting of Counters, &c.
574 to 604	”	”	Superintendents' Daily Report of Progress (Classes I. to XXX.).
605	”	”	General Report of Progress.
606	”	”	Daily Return of Counters erected.
607	”	”	Classification in Foreign Divisions.
608	”	”	Notice on Admission of Visitors during the Preparations.
609		”	Letter on Privilege of Admission during Erection of Building.
610	20 Mar.	”	Final Notice relative to Receipt of Goods.
611	14 Apr.	”	Circular on Final Arrangements and Unpacking Goods.
612	”	”	Ditto ditto (*Another*).
613	11 Apr.	”	Ditto ditto (*Another*).
614	Apr.	”	Ditto ditto (*Another*).
615	14 Apr.	”	Notice to Send in Goods.
616	”	”	Circular on Covering Counters with Red Cloth.
617	”	”	Notice for Supply of Unglazed Turkey Red Calico.
618 to 647	Feb.	”	Lithograph Plan of 30 Classes.
648	”	”	Ticket for certain number of Days (British).
649		”	Ditto ditto (Foreign).
650		”	Ticket for Staff (British).
651		”	Ditto (Foreign).
652	7 Feb.	”	Day Passes for British Exhibitors.
653	”	”	Ditto ditto (Main Avenue).
654	”	”	Ditto ditto (Everywhere).
655	”	”	Ditto for Foreign Exhibitors, &c.
656	”	”	Ditto Customs.

Notices Posted in Building.

No.	*Date.*		*Nature of Document.*
657	Mar.	1851	Notice to Superintendents on Tickets for Workmen.
658		”	Ditto to Persons to use the Steps and not the Ladders.
659		”	List of Persons who might be Employed to make Glass Cases.
660		”	Notice to Exhibitors not to Commence Fittings without the sanction of Superintendent.
661		”	General Notice about Passes, &c.
662		”	Notice, "No Smoking allowed," in various languages.
663	15 Mar.	”	Ditto (Packing-cases).
664	31 Mar.	”	Ditto (Entrances after 3rd April).
665		”	Ditto (Nuisances).
666		”	Ditto (Clearing away Litter, &c.)
667	9 Apr.	”	Ditto to Exhibitors to use Red Cloth.
668		”	Ditto, "No Admission to this Enclosure excepting on Business."
669		”	Ditto to Carmen taking out Empty Packing-cases, &c.
670	27 Dec.	1850	Ditto, posted in Foreign Divisions, relative to Classification.
671	3 Jan.	1851	Labels for different Countries.
672	11 Apr.	”	Miscellaneous Notices.
673	31 Mar.	”	Ditto.

XIV. Administration, Period of Exhibition.

1. *Admission of the Public.*

No.	*Date.*		*Nature of Document.*
674	24 Feb.	1851	Circular relative to Season Tickets and Scale of Prices.
675	”	”	Proposed Season Ticket (not used).
676	30 Apr.	”	Temporary Season Ticket (Gentlemen).
677	”	”	Ditto (Ladies).
678	Apr.	”	Season Ticket (Gentlemen).
679	”	”	Ditto (Ladies).
680	1 May	”	Notice of Opening.
681	”	”	Programme of Musical Performance.
682 to 711	”	”	Cards given to Visitors on entering.
712 to 741	”	”	Placards posted at the various Staircases.
742	May	”	Notice (Articles Lost and Found).
743	”	”	Ditto (ditto Large).
744	”	”	Ditto (Drawings of the Articles exhibited).
745	”	”	Ditto (2 Nos., French and German).
746	”	”	Ditto (Visitors not to touch Goods).
747	”	”	Ditto ditto, another form.
748	”	”	Ditto (Attendance at Stalls).
749	Aug.	”	Notices referring to Catalogue.
750	Apr.	”	Ticket of Reference to Catalogue.
751	”	”	Ditto, Foreign.
752 to 755	June	”	Card of Explanation from Illustrated Catalogue (4 Nos.)
756	May	”	Notice, "Exhibited by a Juror."
757	12 June	”	Ditto (Umbrellas, Coats, &c).
758 to 760	”	”	Tickets used for same (3 Nos.)
761	24 May	”	Notice, "No Readmission, except by Payment."
762	29 May	”	Caution not to hurry at Entrances.
763	”	”	Notice posted in the Water-closets.
764	15 June	”	Ditto (*Another*).
765	4 June	”	Ditto ditto (defacing Notices).
766	10 June	”	Ditto ("Medical Man required").
767	”	”	Placard in cases where a particular person is wanted.
768	16 June	”	Tickets for Attendants (Refreshment Rooms).
769	25 July	”	Admission Ticket to Indian Tent.
770	24 May	”	Miscellaneous Notices.
771	May	”	Circular (Admission of Sick Persons before 12 on Saturdays).
772	”	”	Card given for same.
773	5 Aug.	”	Permission under certain circumstances to enter before the public.
774	Sept.	”	Announcement of Close of Exhibition.
775	”	”	Another ditto ditto.
776	”	”	Card, "Prize Medal."
777	”	”	Ditto, "included in Award of Great Medal."

2. *Gratuitous Admission of Exhibitors and their Attendants, and other Persons under particular circumstances.*

No.	*Date.*		*Nature of Document.*
778	28 Apr.	1851	Circular to Musical Performers, announcing Opening, &c.
779	”	”	Card of Admission for ditto.
780	Apr.	”	Circular in reply to applications for Admission of an Attendant.
781	May	”	Form for Admission of Attendant.
782	Apr.	”	Circular forwarding Admission for Attendant.
783	”	”	Ticket for Exhibitors' Attendant (British).
784	”	”	Circular refusing Admission to an Attendant.
785	”	”	Another ditto ditto.

Catalogue of Printed Documents—*continued.*

No.	*Date.*	*Nature of Document.*
786	30 May 1851	Circular, Attendance of Exhibitors on occasion of Her Majesty's Visits.
787	2 June „	Notice to Exhibitors of Machinery for same object.
788	11 June „	Ditto, Machinery in Motion.
789	Apr. „	Circular on Admission of Foreign Commissioners and Staff.
790	23 Apr. „	Rules of Admission to persons employed.
791	„ „	Circular relating to ditto.
792	Apr. „	Foreign Exhibitors' Attendant's Ticket.
793 to 795	„ „	Admission Ticket issued to Foreign Exhibitors (France), (Zollverein), (United States), (3 Nos.)
796	„ „	Ditto to Foreign Commissioners.
797	„ „	Form of Day Ticket to Exhibitors and Attendants (White)
798	„ „	Ditto ditto (Green), (Executive).
799	15 Apr. „	Card of Admisson for the Press, &c.
800	„ „	Circular relating to ditto.
801	25 Apr. „	Admission for Jurors on 1st May.
802	„ „	Ditto of London Press.

3. *Staff, Discipline, and Interior Economy.*

No.	*Date.*	*Nature of Document.*
803	1 May 1851	Admission to Executive Committee.
804	2 June „	System of Division into Districts.
805	5 June „	Form of District Morning Report.
806	12 Aug. „	Second ditto ditto.
807	„ „	Summary of ditto.
808	19 June „	Form for forwarding particulars of loss or damage.
809	28 May „	Notice posted in District Offices.
810	19 June „	Ditto posted on District Doors
811	17 June „	Ditto (taking Articles in or out of the Building).
812	„ „	Ditto to those using Cotton-waste.
813	13 May „	Ditto, as to Workmen leaving.
814	„ „	Placard, "Please to Pass."
815	„ „	Ditto, "That Way." (Small).
816	24 May „	Another ditto (ditto).
817	„ „	Ditto ditto (Large).
818	„ „	Ditto ditto (ditto).
819	Aug. „	Form of Pass for taking Articles *into* the Building.
820	„ „	Ditto ditto *out* of the Building.
821	5 June „	Daily Report of Repairs chargeable to Fox and Henderson.
822	„ „	Ditto ditto Executive Committee.
823	4 June „	Daily Return of Visitors
824	13 June „	Broadside, "No Spirits, &c., allowed in Building."
825	„	Tickets for Staff (Red).
826	„	Ditto ditto (Blue).

XV. Administration, Closing of Exhibition and Removal of Goods.

No.	*Date.*	*Nature of Document.*
827	23 Aug. 1851	Circular to Local Committees, requesting names of Chairman, Treasurer, and Secretary.
828	30 Sept. „	Ditto to Exhibitors on the Closing.
829	29 Sept. „	Ditto to Local Committees.
830	3 Oct. „	Ditto to Local Commissioners.
831	4 Oct. „	Ditto to Foreign Commissioners.
832	8 Oct. „	Ditto to Members of Firms
833	„ „	Ticket for Exhibitors, Members of Local Committees, &c.
834	„ „	Admission Card for Members of Firms that were Exhibitors.
835	15 Oct. „	Programme of the Proceedings at the Closing.
836	„ „	Form of Prayer used at Closing.
837	13 Oct. „	Broadsides—Holders of Admission Cards.
838	11 Oct. „	Ditto, prohibiting admission without special Tickets.
839	11 Oct. 1851	Broadsides, stating entrances for Exhibitors.
840	„ „	Ditto, stating entrances for Local Commissioners and Lady Exhibitors.
841	14 Oct. „	Another ditto.
842	11 Oct. „	Ditto, stating entrance for Local Committees.
843	14 Oct. „	Ditto, Ladies.
844	„ „	Ditto, Jurors.
845	„ „	Ditto, Local Commissioners.
846	„ „	Ditto, Royal ditto.
847	„ „	Ditto, Foreign ditto.
848	24 Sept. „	Ditto that Exhibition will close.
849	„ „	Card ditto.
850	11 Oct. „	Broadside announcing that Exhibition is Closed to the Public.
851	9 Oct. „	Ticket to Admit Staff, &c., on 13th and 14th October.
852	20 Sept. „	Rules for Removal of British Articles.
853	„ „	Ditto for the Removal of Foreign Goods.
854	2 Oct. „	Circular to Exhibitors of Carriages.
855	„ „	Ditto to certain Exhibitors whose goods were much exposed.
856	„ „	British Exhibitors Permit to pass in or out (East Entrance).
857	Oct. „	Ditto (South Central Entrance).
858	„ „	Ditto Door G.
859	„ „	Ditto H.
860	„ „	Ditto I.
861	„ „	Ditto K.
862	„ „	Ditto L.
863	„ „	Ditto M.
864	„ „	Ditto N.
865	„ „	Ditto O.
866	13 Oct. 1850	British District Morning Reports.
867	„ „	Summary of ditto.
868	15 Nov. 1851	Surrender of Building to Contractors.
869	31 Oct. „	Circular to Exhibitors neglecting to remove their Goods.
870	25 Oct. „	Ditto ditto.
871	13 Oct. „	Form of Foreign Morning Report.
872	25 Oct. „	Circular to British Exhibitors failing to remove their Goods.
873 to 880	16 Oct. „	Forms of Receipt on removal of Goods. (Districts 1 to 8.)
881	„ „	Notice on Goods remaining after 31st January 1852.
882	4 Nov. „	Ticket to Admit to Transept and British side of the Building.
883	„ „	Another ditto.
884	16 Oct. „	Placard, "No Lucifers, &c., allowed."
885	18 Oct. „	Ditto, "No Smoking."
886	„ „	Ditto (French).
887	22 Oct. „	Certificate on leaving to persons employed
888	„ „	Another ditto.

XVI. Catalogue and Refreshments.

No.	*Date.*	*Nature of Document.*
889	1 Oct. 1850	Conditions of Tender for Catalogues.
890	9 Nov. „	Acceptance of Tenders of Messrs. Spicer and Clowes.
891	7 Dec. „	Memoranda relative to Catalogue.
		Notice relative to Official Catalogues.
892	„ „	Ditto, Official Illustrated Catalogue.
893	Dec. „	Forms for Catalogue (Raw Materials).
894	„ „	Ditto (Machinery).
895	„	Ditto (Manufactures).

Catalogue of Printed Documents—*continued.*

No.	*Date.*	*Nature of Document.*
896	Dec. 1850	Forms for Catalogue (Fine Arts).
897	„	Circular relating to General Index.
898	„	Notice relative to Catalogues.
899	„	Ditto (German).
900	„	Rules for Catalogue.
901	7 Dec. „	Memoranda relative to Correction of Catalogue.
902	22 Oct. „	Conditions of Tender for Supplying Refreshments.
903	28 Dec. „	(*Another form.*)
904	May 1851	Notice, Dismissal of Attendants for overcharging.

XVII. Registration of Designs.

No.	*Date.*	*Nature of Document.*
905	2 Nov. 1850	Draft Report of Society of Arts upon Patent Law.
906	26 Aug. „	Circular on Protection of Articles exhibited from piracy.
907	„ „	Ditto ditto ditto.
908	24 Aug. „	Laws on protection of Copyright of Designs.
909	2 Dec. „	Rules for provisional and complete Registration of Designs.
910	18 Dec. „	Circular on Registration.
911	„	Directions for Registering and Searching (Ornamental Designs).
912	„	Announcement relating to Copyright of Designs.
913	„	Rules for obtaining Copyright of Designs for Articles of Utility.
914	„	Form (Rules for Registration of Designs).
915	14 Apr. 1851	Form of Certificate that Article to be registered was in the Building.
916	Feb. „	Note forwarding Regulations.
917	„ „	Ditto acknowledging Receipt of Designs.
918	19 Apr. „	Notice respecting patentable Inventions.
919	May „	Circular relative to Designs.
920	Apr. „	(*Another.*)

XVIII. Working Classes.

No.	*Date.*	*Nature of Document.*
921	4 Mar. 1850	Letter by the Bishop of Oxford.
922	May „	Co-operation of Working Classes at Southampton.
923	3 May „	Proceedings of Working Classes in the Country.
924	May „	Notice from Committee of Working Classes of Edinburgh.
925	May „	Co-operation of Working Classes of Scotland.
926	13 Aug. „	Letter relative to Working Classes.
927	7 Aug. „	Ditto ditto.
928	15 Aug. „	Appointment of Colonel Reid and Mr. A. Redgrave to make arrangements for Working Classes.
929	19 Aug. „	(*Another form.*)
930	„	Regulations for a Register of persons disposed to provide Accommodation for Artisans.
931	„	Ditto ditto.
932	13 Sept. „	Circular sent to persons requesting to be registered.
933	„	Rules of the British Working Men's Association.
934	„	Rules of the Northampton Provident Society.
935	25 Nov. „	Circular on formation of Travelling Clubs.
936	17 Dec „	Memorandum on Railway Accommodation.
937	1 Jan. 1851	Circular declining to provide Lodgings for Visitors.
938	„	(*Another.*)

No.	*Date.*	*Nature of Document.*
939	1 Jan. 1851	Regulations, &c., of Working Men's Committee for Leeds District.
940	24 May 1850	Circular from Bishop of Oxford (Central Working Classes Committee).
941	„	Rules of the Bradford Club for enabling Workmen to visit the Exhibition.
942	„	Circular of the Ranelagh Club House for Mechanics.
943	„	(*Another.*)
944	„	Pamphlet on the importance of the Exhibition to the Working Classes.
945	6 May „	Circular, announcing appointment of Committee to collect Subscriptions from Working Classes.

XIX. Juries.

No.	*Date.*	*Nature of Document.*
946	Mar. 1851	Decisions regarding Juries.
947	„ „	Ditto.
948	„ „	Ditto.
949	3 May „	Opinions of Committee on ditto.
950	„	Decisions on the award of Medals.
951	„	Circular on the Number of each Jury.
952	Apr. „	List of Names returned for selecting English and Colonial Jurors.
953	1 June „	Form of Warrant to Jurors.
954	May „	List of Jurors.
955	2 June „	Declaration of Jurors.
956	20 June „	Ditto.
957	„ „	List of Associate Jurors.
958	Feb. „	Detailed Classification.
959	15 May „	Instructions from the Council of Chairmen to the Juries.
960	„	Form of Convening Meeting of Council of Chairmen.
961	„ „	Report of the Sub-Committee of Chairmen as to the Working of Group C.
962	20 May „	Form of Return of Weekly Meetings of Jurors.
963	„	Form to show Names of Jurors who examined any particular Article.
964	19 May „	Form of Comparison of Produce, Dyeing, Woollens.
965	„ „	Ditto Printing, Class XVIII.
966	„	Form of Convening Meeting of Jurors.
967	„	Another ditto.
968	„	Circular to Exhibitors calling for Information.
969	„	Ditto requesting attendance of Exhibitors.
970	„	Ditto requesting list of Prices.
971	16 May „	Ditto requesting Exhibitors to send their keys.
972	„ „	Ditto to Exhibitors of Class XVII.
973	22 Apr. „	Juror's Pass on 1st May.
974	15 Oct. „	Report of Viscount Canning on presenting the Awards of the Juries.
975	17 Oct. „	London Gazette containing the Jurors' Awards.
976	Aug. „	Circular for leave to take Photographs.
977	„ „	Form of Authority for taking Photographs.
978	June 1851	Jurors' Award Books.
979	18 Oct. „	Prince Albert's Letter to Jurors.
980	„ „	Circulars to Lady Jurors.
981	„	Award Book for unclassified Council Medals.
982 to 1016	„	Award Book for Juries (35 Nos.)

Catalogue of Printed Documents—*continued.*

XX. Medals.

No.	*Date.*	*Nature of Document.*
1017	Apr. 1850	Announcement for Competition in Designs (French).
1018	„ „	Ditto (German).
1019	„ „	Ditto (English).
1020	25 May „	Circular acknowledging receipt of Design.
1021	„	Notice relating to Tenders for Cases
1022		Circular to persons not entitled to Service Medal.
1023		Ditto ditto.
1024	8 Dec. 1851	Circular, Firms may receive extra Medals on payment.
1025	19 June 1850	Admission to view Designs for Medals.
1026	17 Nov. „	Circular to Foreign Commissioners relative to Jurors' Medals.
1027	9 Dec. 1851	Notice to receive Medals.

XXI. Trade Collection.

No.	*Date.*	*Nature of Document.*
1028	18 July 1851	Notice relative to Trade Collection
1029	1 Aug „	Circular accompanying Statement relative to proposed Collection (Raw Produce).
1030	„ „	Ditto (Machinery).
1031	„ „	Ditto (Fabrics).
1032	„ „	Ditto (Works of Art).
1033	„ „	Ditto to Foreign Commissioners.
1034	Sept. „	Ditto, reply to Exhibitors intending to contribute.
1035	„ „	Ditto acknowledging receipt of Letter.
1036	„ „	Ditto acknowledging receipt of Articles.
1037	Oct. „	Ditto accepting Articles.
1038	„ „	Ditto declining to purchase.
1039	„ „	Ditto in reply to offers of Articles from Foreign Commissioners.
1040	„ „	Ditto on the best mode of promoting the Collection.
1041	„ „	Label for articles presented.
1042	„ „	(*Another.*)
1043	„ „	Card ditto.
1044	„ „	Circular to Exhibitors not replying to Notices.
1045	14 Oct. „	Notice to British Exhibitors.
1046	„ „	Memorandum on Specimens for Foreign Countries.
1047	20 Oct. „	Circular to Foreign Commissioners for return of the Specimens they require.
1048	„ „	Form of Return enclosed.
1049	Aug. 1851	Ticket for Trade Collection (Raw Produce).
1050	„	Ditto (Plans, Diagrams, &c.)
1051	„	Ditto (Specimens of actual Fabrics).
1052	„	Ditto (Works of Art).
1053	6 Oct. 1851	Broadside relative to Chemical Society.
1054	21 Nov. „	Statement of the origin, present position, and prospects of the Collection.

[*Collection of Trade Circulars.*]

No.	*Date.*	*Nature of Document.*
1055	30 Aug. 1851	Circular to British Exhibitors.
1056		Ditto to Foreign Commissioners.
1057		Ditto requesting additional copies.
1058		Alphabetical List of Exhibitors contributing Trade Circulars.

XXII. Customs.

No.	*Date.*	*Nature of Document.*
1059	1850	Regulations for receiving Goods at the Outports.
1060	„	Regulations for Landing Officers at the Legal Quays and Docks.
1061	„	Regulations for selected Agents and others.

XXIII. Miscellaneous.

No.	*Date.*	*Nature of Document.*
1062	1851	Daily Report of Wind and Atmospheric Pressure.
1063 to 1120	„	Daily Weather Chart by Electric Telegraph.
1121	Sept. „	Circular to Exhibitors of Military Accoutrements, &c.
1122		Broadside (Lectures by Professor Ansted).
1123	21 May	(*Another.*)
1124	13 May	Notice (Charges for using Water-closets, &c.).
1125		Proposed Form of Typographical Plan of the Building (Proof).
1126	1849	Example of Form for Suggestions for Prizes
1127	7 July 1851	Extract from Minutes.
1128	3 Sept. „	Four Circulars (various).
1129	11 Sept. 1850	Extract from "Blackburn Standard."
1130	21 July 1851	Circular, on admission of Additional Articles.
1131	Aug. 1851	Form for value of Articles exhibited.
1132		Circular forwarding ditto.
1133	Oct. „	Circular to Exhibitors delaying to send Value Returns.

The total number of copies printed and circulated has been estimated at 1,500,000.

H. C. O.

APPENDIX No. V.

Return of the Executive Committee, and of the Staff in charge of different Departments.

ORGANIZATION DURING THE ARRANGEMENTS.

Executive Committee (Acting Members).	*Space and Arrangement of Articles*, Henry Cole, C.B.; *Control of Building and General Superintendence*, Colonel Sir W. Reid, R.E., K.C.B., and C. Wentworth Dilke.
Preparation of Plans and Building Arrangements.	*Superintending Architect*, M. Digby Wyatt; *Interior Decoration, &c.*, Owen Jones; *Superintending Engineer*, C. H. Wild; *Surveyor*, H. E. Harwood; *Clerk of Works*, W. Earie; *General Assistants*, E. L. Bateman, J. M. Dodd, C. Fowler, J. Haite, Henry Warren; *Sappers and Miners*, Corporals Barrow, Campbell, Fleming, and Lindsey.
Organisation of Local Committees	C. Wentworth Dilke, H. Cole, Dr. Playfair, M. D. Wyatt, J. Scott Russell, F. Fuller, G. Wallis, Capt. Ibbetson, W. H. Dixon, S. Sidney, C. A. Cole, T. H. Byng Hall, W. W. Rundell, F. Whishaw, F. Warren, G. W. Yapp, J. Dunning, Professor Woodcroft, R. Church, J. Cook Evans, H. Rosser, Dr. Tunstall, E. Hailstone, P. Le Neve Foster, Major Majendie, H. H. Rood.
Computation of British Space	H. Hensman, Captain H. C. Owen, Lieut. Crossman, G. Wallis, G. F. Duncombe, R. G. Wylde, F. M. Harman, and E. Hewgill.
Finance	*Financial Officer*, F. S. Carpenter; *Clerks*, J. Lyon, C. Osborn, T. T. Musgrove.
Correspondence	G. F. Duncombe, D. C. Bell; *Clerks*, F. J. Connell, J. Wilbud, F. A. S. Meikleham, C. G. Quinton, L. M'Grath; *Foreign Correspondence*, R. G. Wylde, A. J. Burgess; *Registrar*, J. J. Wade; *Assistant*, T. G. Graham; *Post-Office*, Osmond Jones, C. B. Worsnop; *Quarter-Master*, T. Levitt; *Office Keepers*, 2; *Door-keepers*, 4; *Messengers and Porters*, 12; *Boys*, 6; *Charwoman*, 1.
Arrangements for Working Classes	Colonel Sir W. Reid, R.E., K.C.B., and Alexander Redgrave.
Catalogue	*Superintendent on the part of the Commission*, Lieut.-Colonel J. A. Lloyd; *Contractors*, Messrs. Spicer and Clowes; *Scientific Editor*, R. Ellis; *Compiler*, G. W. Yapp.
Registration of Designs	Captain L. L. B. Ibbetson; *Clerks*, F. A. S. Meikleham, E. Mott.
Police	*Superintendent*, N. Pearce; *Inspectors*, J. Beckerson, (B) Division; N. S. O'Brien, (C); R. Lester, (D); J. Douglas, (A).
Customs	J. H. Rolls, W. Fairman, and Staff.
Royal Sappers and Miners	Colonel Sir W. Reid, Commanding; 5th Company, Capt. H. C. Owen, R.E.; 22nd Company, Capt. Gibb; *Adjutant*, Lieut. Stopford.
Fire Arrangements	Captain Gibb, R.E., J. Braidwood; *Royal Sappers and Miners*, Sergeant Prance, Corporals Crout, Shears, and Jarvis; *Engineer of London Fire Brigade*, J. Bridges; and 5 *Sub-Engineers*.
Admission of, and Information to, Exhibitors, &c.	Captain Gibb, R.E.; Lieutenant Gordon, R.E.; F. J. Connell; and E. Hewgill.
General Superintendence	Captain Collinson, R.E., Lieut. Crossman; *Sappers and Miners*, Col.-Sergeant Harding; Sergeants Spencer and Jamieson.
Reception of Goods	Thomas Belshaw; *Assistants*, R. Hakewell and D. Munro.
Class I.	*Superintendents*, Professor Ansted, R. Hunt; *Assistant*, J. Watson; *Sappers and Miners*, Corporal Flude; Private Anderson.
Class II.	*Superintendent*, Dr. Playfair; *Assistants*, Capt. Ward, R.E., A. Phillips; *Sappers and Miners*, Corporal Stein; Private Stewart.
Class III.	*Superintendent*, Dr. Lindley; *Assistant*, W. Matchwick; *Clerk*, J. Ravenhill; *Sappers and Miners*, Corporal Wilson; Private Low.
Class IV.	*Superintendents*, Dr. Lindley and Dr. Royle; *Assistant*, W. Matchwick; *Sappers and Miners*, Corporal Wilson; Private Low.
Class V.	*Superintendent*, H. Hensman; *Assistants*, Lieut. Du Cane, R.E. G. A. Biddell, H. Colson, F. Hehl; *Sappers and Miners*, Corporals Fleming, Dickson, Irwin, Birmingham; Private Newton.
Class VI.	*Superintendent*, H. Hensman; *Assistants*, G. A. Biddell and Ensign Craster, H.E.I.C.; *Royal Sappers and Miners*, Corporal Miles; Privates Bispham, J. Smith, and Harding.

BR. SH .RANGEMENTS	Class VII.	*Superintendent*, Lieutenant Walker, R.E.; *Royal Sappers and Miners*, Corporal Thomas; Private Pheasant.
	Class VIII.	*Superintendents*, Captain Westmacott, R.E., A. Watts, and Captain Inglefield, R.N.; *Royal Sappers and Miners*, Corporals Fraser and Barnard; Private Kelly.
	Class IX.	*Superintendent*, J. T. Brandreth Gibbs; *Assistants*, Ensign Soady, H.E.I.C., and H. Duck; *Royal Sappers and Miners*, Private Nobbs.
	Class X.	*Superintendent*, Lieut.-Colonel J. A. Lloyd; *Assistants*, Lieutenant Trevor, H.E.I.C., A. Lowe, and Sergeant Montgomery, H.E.I.C.; *Royal Sappers and Miners*, Corporals Pearson and Gall; Private Watson.
	Class XI. Classes XII. and XV. Class XIII. Class XIV.	*Superintendent*, George Wallis; *Assistants*, B. W. Hawkins, J. Heath, G. Perry, and J. Willshire; *Royal Sappers and Miners*, Corporals Dumville, N. Marshall, E. Taylor, and Thripland; Privates M'Adam and G. Gall.
	Class XVI.	*Superintendent*, J. M. Dodd; *Assistant*, B. Hallowes; *Royal Sappers and Miners*, Corporal Ferguson; Privates Jose and J. Brown.
	Class XVII.	*Superintendent*, Owen Jones; *Assistants*, Thomas Hill and H. T. Read; *Royal Sappers and Miners*, Privates Mitchell and Hay.
	Class XVIII.	*Superintendent*, George Wallis; *Assistant*, B. W. Hawkins; *Royal Sappers and Miners*, Corporals Marshall and Thripland.
	Class XIX.	*Superintendent*, J. H. Lowe; *Assistant*, H. Kenrick; *Royal Sappers and Miners*, Corporal James.
	Class XX.	*Superintendent*, George Wallis; *Assistant*, B. W. Hawkins; *Royal Sappers and Miners*, Corporals J. Wright and James; Private Wright.
	Class XXI. Class XXII.	*Superintendent*, R. A. Thompson; *Assistants*, F. Morgan and T. T. Musgrove; *Royal Sappers and Miners*, Corporals Mack and Gartshore; Privates Douglas, Lidford, Maddick, and Rowley.
	Class XXIII.	*Superintendent*, J. H. Lowe; *Assistant*, H. Kenrick; *Royal Sappers and Miners*, Corporals M'Quillan and Pike; Privates Bowling, Gill, and W. Taylor.
	Class XXIV. Class XXV.	*Superintendent*, Lieutenant Pasley, R.E.; *Royal Sappers and Miners*, Corporal Kelly; Privates Lidford and J. Thomson.
	Class XXVI.	*Superintendent*, C. T. Thompson; *Assistants*, B. Hallowes, F. Morgan, and T. T. Musgrove; *Royal Sappers and Miners*, Corporals Mack and Stewart.
	Class XXVII.	*Superintendent*, Professor Ansted; *Assistant*, Lieutenant Du Cane, R.E.; *Royal Sappers and Miners*, Private Chambers.
	Class XXVIII.	*Superintendent*, C. T. Thompson; *Assistants*, F. Morgan and T. T. Musgrove; *Royal Sappers and Miners*, Corporals Mack and Stewart.
	Class XXIX.	*Superintendent*, J. M. Dodd; *Assistant*. B. Hallowes; *Royal Sappers and Miners*, Corporals Moore and Baker.
	Class XXX.	*Superintendents*, Owen Jones and John Bell; *Assistants*, Thomas Hill and H. T. Read; *Royal Sappers and Miners*, Privates Mitchell and Hay.
	Jersey and Guernsey	*Commissioners*, Captain W. W. Childers, Thomas Clugas, jun.
	General Superintendence	Dr. Lindley, Lieutenant Tyler, R.E.; *Assistant*, Ensign Brownlow, H.E.I.C.S.
	India	Dr. Royle, Professor E. Solly, Ensign Trevor; *Assistant*, W. Downing.
COLON	**China and Persia**	Lieut.-Colonel J. A. Lloyd, Lieutenant Tyler, R.E.
	Canada	*Commissioner*, Henry Houghton; *Assistant*, — Perry.
	Nova Scotia	*Commissioner*, C. D. Archibald.
	New Brunswick	*Acting Commissioner*, Duncan Macgregor.
	South Australia	*Acting Commissioners and Agents*, Messrs. Hallett and Co.
	Van Diemen's Land	*Agent*, Charles M'Lachlan.
	New Zealand	*Acting Commissioner and Agent*, E. G. Moore.
	Ceylon	*Commissioner*, John Capper.
	Barbadoes	*English Agent*, Alfred Reade.
	British Guiana	*English Agent*, A. F. Ridgway.
	Malta	*Commissioner*, C. J. Gingell.
	Cape of Good Hope	*Acting Commissioner and Agent*, H. Watson.
	Western Africa	Dr. M'William.

EXECUTIVE ORGANIZATION.

General Superintendence	Captain H. C. Owen, R.E.; *Assistants*, R. G. Wylde, F. M. Harman; *Royal Sappers and Miners*, Colour-Sergeant Deary.
Reception of Goods	*Receiver*, M. Rafter; *Assistants*, F. R. Marriott, C. G. Godfrey, W. Boutell, and W. H. Cousins.
America (United States of)	*Commissioner*, Edward Riddle; *Secretaries*, Messrs. N. S. Dodge and Morey; *Clerks*, Messrs. Brewster and Walker; *Attendants*, 3.
Austria	*Commissioner*, Charles Buschek; *Secretary*, J. Wylie Barrow; *Decorator*, M. Bernardis; *Superintendent*, M. Schieffele; *Clerks*, MM. Rentheim and Rotton; *Attendants*, 41.
Belgium	*Commissioner*, Charles Cuylits; *Chief Inspector*, M. Fremont; *Inspectors*, MM. Muldary, Povart, and Vandernoot; *Attendants*, 13
Denmark	*Commissioner*, Regnar Westenholz; *Attendants*, 2.
Egypt	*Commissioner*, Captain Abdul Hamed.
France	*Commissioner*, M. Sallandrouze de Lamornaix; *Chief Inspector* M. Tresca; *Inspectors*, MM. Roguez, Gromort, Rouvin, Bentheim; *Chef d'Administration*, M. Pérémé; *Secretaries*, MM. Barrot, Noblet, Clement, Schuster; *Attachés*, MM. Sallandrouze fils, Morin, Vouillon, Detraz; *Attendants*, 9.
Zollverein (Central Commission)	*Commissioners*, Geheim-Rath Von Viebahn, Baurath Stein; Assessor Vettin; *Secretaries*, Broux, Frankel, Nuellens, Von Konring: *Superintendents*, Heese, Beer; *Engineers*, Lechlin, Schreger; *Inspectors*, H. Runge, Licht; *Workmen and Attendants*, 21.
Bavaria	*Commissioners*, Dr. Schafhäutl, Herr Shubarth; *Clerk*, H. Richter; *Overseer*, H. Harczyk.
Wurtemburg	*Commissioner*, Dr. Steinbeis; *Agents*, Charles Brand, M. Schiedmayer.
Nassau	*Commissioner*, M. Odernheimer.
Grand Duchy of Hesse	*Commissioner*, Herr Rossler.
Saxony	*Commissioners*, Dr. Seyffarth, Herr Doerstling; *Secretary*, Herr De Bose; *Attendants*, 5.
Hamburgh and North Germany	*Commissioners*, Herren Piglheim, Noback, Meyer; *Attendants*, 2.
Greece	*Commissioners*, MM. Ralli, Mavrojani, and Scaramanga.
Hanover	*Commissioner*, Mr. Stahlschmidt.
Netherlands	*Commissioners*, MM. Camp *(deceased)* and Goossens; *Attendants*, 2.
Portugal	*Commissioners*, Chevalier Ribeiro de Sa, F. T. Van Zeller, A. Valdez; *Attendant*, 1.
Rome	*Commissioner*, Carlo Trebbi.
Russia	*Commissioner*, Gabriel Kamensky; *Architect*, M. De Beyne; *Secretary*, C. Digby; *Attendants*, 5.
Sardinia	*Commissioner*, Chevalier Lencisa; *Superintendent*, M. Berry; *Clerk*, M. Benoit; *Attendant*, 1.
Spain	*Commissioners*, Don Ramon de la Sagra, Don Manuel de Ysasi, J. Villanueva, Don R. Echevarria; *Assistant*, M. Mayo; *Clerks*, J. C. Macdonald, H. G. Heath; *Attendants*, 2.
Sweden and Norway	*Commissioner*, Charles Tottie; *Assistant*, Major Rozenkild *Attendant*, 1.
Tunis	*Commissioners*, Hamda Elmkadden, Moses Santillana; *Assistants*, Nunez, Cato, Perone, Belais.
Turkey	*Commissioner*, Edward Zohrab; *Inspectors*, Messrs. C. J. Major, Gadben; *Attendants*, 2.
Tuscany	*Commissioner*, Professor F. Corridi; *Attendants*, 2.

ORGANIZATION DURING THE EXHIBITION.

Executive Committee (*Acting Members*).	Colonel Sir W. Reid, R.E., K.C.B., Henry Cole, C.B., and C. Wentworth Dilke.
Correspondence	(Same as during the arrangements.)
Catalogue	(Same as during the arrangements.)
Registration of Designs	(Same as during the arrangements.)
Police	(Same as during the arrangements.)
Customs	(Same as during the arrangements.)
Royal Sappers and Miners	(Same as during the arrangements.)
Fire Arrangements	(Same as during the arrangements.)

Finance, including Admission of the Public.	*Financial Officer*, F. S. Carpenter; *Superintendent of Money Takers, Doorkeepers, &c.*, W. Murray; *Assistants*, D. Dunnett, C. G. Godfrey, R. Slater; *Clerks*, R. Hayes, W. Kendall, J. Lyon, F. A. Meikleham, T. T. Musgrove, C. Osborn; *Private Doorkeepers*, 2; *Collectors*, 4; *Money-takers*, 18; *Season Ticket-takers*, 5 to 11; *Receivers of Umbrellas*, 10; *Porters and Messengers*, 6.
Photography - - - - - - - -	C. Thurston Thompson; *In charge of party of Royal Sappers and Miners*, Corporal R. P. Jones.
Trade Collection, Estimate of Value, and Collection of Trade Circulars.	Lieutenant Tyler, R.E.; *Clerks*, A. J. Burgess, C. G. Godfrey, J. N. Hillman; *Royal Sappers and Miners*, Sergeant Spencer, and Corporal Mortimer.
General Superintendence - - - -	Captain H. C. Owen, R.E.; *Assistant*, T. Belshaw; *Clerk*, T. Aston *Receipt, Issue, and Exchange of Goods (British)*, D. Munro; *Foreign*, F. R. Marriott; 12 to 18 *Porters, Messengers, &c.*; 25 *Sweepers*: John Goldie, *Superintendent*.
District 1. — *Transept, Western Nave, India, and Outside Building.*	*Superintendent*, F. J. Connell; *Assistant*, J. Ravenhill; *Royal Sappers and Miners*, Privates Hay and Webb; *Classmen*, H. Elliott, T. McCarthy, T. Tanner.
District 2. — *Classes I., IX., XXI. (Part), XXII., XXVI. (Metropolitan Furniture and Mediæval Court), XXX. (Sculpture Court), and Colonies (except India, Ceylon, Malta, and Jersey and Guernsey).*	*Superintendent*, R. A. Thompson; *Assistants*, H. Duck, F. Morgan, D. Pawson, F. Pawson; *Royal Sappers and Miners*, Corporals Flude and George; Privates Anderson, Booker, Douglas, Haines, Nobbs, Rowley; *Classmen*, G. Allen, J. Bettridge, J. Brachin, J. Butterworth, H. Campbell, W. Gilbert, J. Hawkins, P. Lines, R. Liddell, J. Mills, W. McQueen, W. Panton, T. Robinson, H. Spong, D. Sullivan, J. Smith, W. Turner, and S. W. Waters.
District 3. — *Classes V. (Carriages), XVI., XVII., XXVI. (Provincial Furniture), XXVII., XXX. (Fine Arts Court), Ceylon, Malta, Jersey and Guernsey.*	*Superintendent*, J. M. Dodd; *Assistant*, B. Hallowes; *Royal Sappers and Miners*, Corporals Chambers and Mitchell; Privates Brown, Cook, Ferguson, Jose, Reeves; *Classmen*, N. Aspinal, E. Collingwood, W. Higgins, J. Leah, P. Lenghan, J. Morgan, J. Neal, T. Simpson, E. Smith, J. Ledger, J. Smart, and H. Walton.
District 4. — *Classes XI., XII., and XV. (Part 1.), XIV. and XVIII.*	*Superintendent*, G. Perry, succeeded by J. Willshire; *Assistants*, H. Haines, J. Heath; *Sappers*, Corporals E. Taylor, W. Thripland, Hoskins, and Donaldson; *Classmen*, A. Boswell, W. Cox, R. Edwards, T. Goose, W. Moore, F. Payne, and A. Tinling.
District 5. — *Classes V. and VI. (Machinery in Motion and at Rest).*	*Superintendent*, G. A. Biddell; *Assistants*, H. Colson, F. Hehl; *Royal Sappers and Miners*, Corporals W. Dickson and Fleming; Privates Bispham, Harding, Lennox, and J. Smith (2nd); *Classmen*, H. Carlisle, T. Griffiths, G. Howlett, T. King, Phamer, Smith, Thornton, and Whitaker.
District 6. — *Classes II., III., IV., XII., and XV. (Part 2), XIII., XIX., and XX.*	*Superintendent*, B. W. Hawkins; *Assistant*, B. L. Hawkins; *Royal Sappers and Miners*, Corporals Stein, Wilson, Dow, Ramsey, James, and Jane; Privates Bowers, Low, G. Stewart, and J. Wright; *Classmen*, J. Ambling, E. Cowell, J. Dorrington, J. Durant, E. Hales, J. Harrison, S. Jones, J. Kent, E. Kennelly, and G. Wiles.
District 7. — *Classes VII., VIII., X. (Surgical Instruments), XXI. (Part), XXII., XXV., XXVIII., and XXIX.*	*Superintendent*, Lieutenant Pasley, R.E.; *Assistant*, H. T. Read; *Royal Sappers and Miners*, Corporals Fraser, McQuillan, Moore, Kelly, Pearson, Stewart, and Thomas; Privates Cought, Kelly, Inkpen, Maddick, Patterson, Pheasant, Rowland, Rowley, J. Thomson, and Cummings; *Classmen*, A. Boxall, C. Davis, M. FitzGibbon, J. Halliman, M. Lamer, D. M'Kibbon, E. Parry, W. Pearce, D. Walters, and R. Weir.
District 8. — *Classes X. (Philosophical Instruments), XXIII., XXIV. (Stained Glass and British Goods in the South-east Gallery).*	*Superintendent*, J. H. Lowe; *Assistant*, H. Kenrick; *Royal Sappers and Miners*, Corporals McQuillen, Pike, and Taylor; Privates Bowling, W. Fergusson, Gill, and Reynolds; *Classmen*, A. Crawley, J. Elgie, J. Pearse, and W. Rose.
District 9. — *(Turkey, Egypt, Greece, Spain, Portugal, Italy, Tunis, Switzerland, France, Belgium, and Netherlands.)*	*Superintendent*, R. G. Wylde; *Assistant*, W. C. Carr; *Royal Sappers and Miners*, Corporals Letton and Kendrick; *Classmen*, H. Roper and J. Oldroyd.
District 10. — *(Austria, Zollverein, Russia, N. Germany, Sweden, and U. States.)*	*Superintendent*, F. M. Harman; *Assistants*, J. Wallis, R. Green; *Royal Sappers & Miners*, Private Beaton; *Classman*, E. Babington.
Admission of British Exhibitors and their Attendants.	Lieutenant Tyler, R.E.; *Assistants*, J. N. Hillman, T. Donohue, J. Evans, J. Gray.
Foreign Ditto - - - - - - -	W. H. Coppinger; *Assistant*, H. Aberdeen.
Floral Decoration - - - - - -	Dr. Lindley; *Superintendent*, W. Matchwick; *Charge of Trees*, G. Taylor; *Attendants*, 2.
Ventilation - - - - - - - -	Lieutenant Crossman, R.E.; *Royal Sappers and Miners*, Corporals Noon, Ancell, Wright.
Refreshments & Retiring Rooms - -	*Superintendent*, Captain L. L. B. Ibbetson; *Assistant*, C. Rickard; *Messengers and Doorkeepers*, 3; *Attendants on Retiring Rooms*, 21.

Note.—District 5 still remained under the general charge of Mr. Hensman, and the Textile Fabrics under that of Mr. Wallis.

JURY DEPARTMENT.

Special Commissioner	Dr. LYON PLAYFAIR, C.B.; *Secretary*, Captain WARD, R.E.
Deputies:	
GROUP A (*Raw Materials*)	JOHN WILSON, F.R.S.E.; *Assistant*, W. MATCHWICK.
GROUP B (*Machinery*)	Lieutenant-Colonel LLOYD; *Assistants*, Lieutenants DU CANE and CROSSMAN, R.E.
GROUP C (*Textile Manufactures*)	GEORGE WALLIS; *Assistant*, G. PERRY.
GROUP D (*Metallic and Fibrous Manufactures*)	Captain IBBETSON,
Groups E and F (*Miscellaneous Manufactures and Fine Arts*).	Sir STAFFORD H. NORTHCOTE, Bart., C.B.; *Assistant*, G. T. WRIGHT
Interpreter	Major BOYD.
Registrar of Awards	G. HART.
Clerks	W. MELVILLE, A. LOWE, F. GWYNNE, W. H. COUSINS, E. MOTT, JAMES HEATH, C. PHILIPSON, C. W. PEACH, M. C. WESTON, ALBERT RYFFEL, F. RAFTER, J. P. TULLY.

APPENDIX No. VI.

REPORT upon the EMPLOYMENT of the CORPS of ROYAL ENGINEERS and ROYAL SAPPERS and MINERS in connexion with the EXHIBITION.

Origin of their employment.

THE first connexion between these corps and the Exhibition arose from the appointment of Colonel Reid as Chairman of the Executive Committee on the 12th February 1850. In the month of September 1850, by authority of the Master-General of the Ordnance, a small detachment of Royal Sappers and Miners was placed at the disposal of the Commissioners. In November the detachment was slightly increased, and Captain Owen, R.E., then at Woolwich, was also permitted to give his assistance to the Executive. The number of Royal Sappers and Miners was still further increased in the course of the following months by the addition of the whole of the 5th and 22nd Companies: the 5th commanded by Captain Owen, the 22nd by Captain Gibb, while a detachment, composed of portions of other companies, was commanded by Lieut. Stopford, who was also Acting-Adjutant.

The strength of the corps at various periods is shown in a Table at the end of the Appendix.

RETURN showing the Duration and Nature of the Duty performed by the OFFICERS of ROYAL ENGINEERS in the Service of the COMMISSION.

Rank.	Names.	Joined	Quitted	Nature of Duty.
Colonel	Sir Wm. Reid	12 Feb., 1850	27 Oct., 1851	Chairman of Executive Committee.
Captain	S. Westmacott	10 Feb., 1851	9 May, 1851	Superintendent of Class VIII.
,,	T. B. Collinson	12 Feb., 1851	31 May, 1851	Superintendent of the British side during the arrangements.
,,	Henry C. Owen	3 Nov., 1850	Still employed with the Executive Committee.	Superintended the computation of the space for the United Kingdom: was Superintendent of the Foreign department during the arrangements. After the opening he was general Superintendent.
,,	C. J. Gibb	1 Feb., 1851	4 Nov., 1851	Admittance of workmen and others during the preparations and arrangements for security from fire.
1st Lieut.	E. W. Ward	20 Feb., 1851	6 Nov., 1851	Assisted Dr. Playfair in Class II., and afterwards as Secretary to the Jury Department.
,,	Charles Pasley	17 Feb , 1851	1 Feb., 1852	Superintendent of Classes XXIV. and XXV., and of District 7 during the Exhibition; he afterwards assisted Captain Owen in his duties.
,,	H. W. Tyler	10 Mar., 1851	Still employed with the Executive Committee.	Arranged the Persian and Chinese collections, assisted Dr. Lindley in the Colonial Department. Trade collection & computation of value.
,,	G. E. L. Walker	5 Feb., 1851	31 May, 1851	Superintendent of Class VII.
,,	G. H. Gordon	11 Feb., 1851	21 May, 1851	Received and answered personal inquiries during the arrangements.
,,	G. M. Stopford	20 Jan., 1851	1 Feb., 1852	Acting-Adjutant.
2nd Lieut.	E. F. Du Cane	1 Dec., 1850	31 July, 1851	Assisted in arrangement of Class V.
,,	W. Crossman	1 Dec , 1850	8 Sept., 1851	Assisted in the space computation, and in other arrangements connected with its allotment.

The officers of Engineers were paid by the Board of Ordnance, and received the same rate of pay as those employed in the ordinary duties of the London district.

Duties of the Sappers and Miners.—The duties on which the Royal Sappers and Miners were employed were very various. The following is an account of the most important of them, and the number employed on each particular duty at different times will appear from the table annexed.

General Superintendence.—One of the colour-sergeants, during the arrangements, superintended the Sappers on the British side, and the other on the foreign side. After the opening of the Exhibition, Colour-Sergeant Hardinge, acted as sergeant-major, and Colour-Serjeant Deary as foreman of works in the repair of damages which accidents and the pressure of the crowd were continually causing to the railings, counters, &c.

Clerks and Draughtsmen.—The clerks were employed under the various officers, military and civil, of the Executive Committee; the draughtsmen, partly under Sir W. Cubitt and Mr. M. Digby Wyatt, when they found such assistance necessary in the superintendence and record of the progress of the Building, but principally under the Executive Committee, in making the numerous plans which were necessary during the preliminary arrangements. It was from their surveys and drawings that the plans in this volume were made. The men employed as clerks and draughtsmen varied at different times, from three to forty in number. One of these men was also employed in working an autographic press, which was useful when a few circulars were required at a short notice.

In charge of Stationery.—Two men were in permanent charge of the receipt and issue of printed forms, and all articles of stationery, to the various offices.

Testing Iron-work of Building.—Two men were employed during the erection of the Building in testing the cast-iron girders with a hydraulic press, and in ascertaining that all the bolts were sufficiently screwed up; also in keeping a record of the iron-work fixed each day.

Workshops.—One man was employed in making small models of counters of various parts of the Building, and other things of the kind required during the arrangements. After the opening of the Exhibition a party was employed as described above, in repairing damages.

Marking Building.—A party, varying from five to twenty-five men, was employed during the arrangements in numbering and lettering the columns, and laying down on the floor of the Building the plan of the proposed passages and counters.

Receiving and removing Goods.—The number available for unloading the goods when they were coming in, varied from twenty to fifty men, and was not sufficient without the assistance of considerable numbers of porters from the Docks.

Custom-house Examination.—From ten to twenty men were employed during the receipt of goods in opening the cases, and in assisting the Custom-house examination.

Fire Arrangements.—Their employment in taking the necessary measures for security from fire is detailed at length in Captain Gibb's Report (Appendix XXVI).

Ventilation.—Opening and closing the louvre-boards, and keeping a register of the temperature in the Building, the results of which are given in Appendix X.

Class-men.—There were one or more men to each Class on the British side, who carried out the orders of the Class and District Superintendents during the arrangements, and also during the time of the Exhibition.

Sweeping.—A party of about forty men came early in the morning during the Exhibition; and after sweeping the British side of the Building either were kept as a reserve or returned to their barracks. The foreign side of the Building was swept by civilians.

In addition to the above they, on several occasions, assisted the police in their duties, especially on the opening and closing days;* and they rung the bells at the time the Building closed each day.

Pay.—The rule of the service is that in addition to their military pay, the men receive working pay, varying from 6*d.* to 1*s.* per day for every day they are at work. In practice the rates of pay lower than 1*s.* are reserved as means of punishment, and nearly the whole of the men receive 1*s.* a-day. During the Exhibition the working pay was paid by the Royal Commissioners, and was increased to 1*s.* 3*d.*, and in some cases to 2*s.* a-day.

A detachment of the Engineers and Sappers and Miners of the Hon. East India Company was also employed during the months of February, March, and April.

Ensign Craster assisted Mr. Hensman in the arrangement of Class VI.

Ensign Scady assisted Mr. Brandreth Gibbs in Class IX.

Ensign Brownlow assisted Dr. Lindley in the Colonial Department.

Ensign Trevor and the *Sappers and Miners* assisted Dr. Royle in the Indian Department.

February 20, 1852.

Henry C. Owen,
Captain Royal Engineers.

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* See Sir Richard Mayne's Report, Appendix xxv.

GENERAL ORDERS CORPS of ROYAL ENGINEERS and ROYAL SAPPERS and MINERS.

87, *Pall Mall*, 1*st November*, 1851.

The following Minute of the Master-General, and Letter from His Royal Highness the President of the Commission for the Exhibition of 1851, are communicated for the information of the Corps.

By Order of the Inspector-General of Fortifications,

C. MATSON,
A.A.G.

31*st October*, 1851.

The Master-General of the Ordnance directs that the very gratifying Letter of His Royal Highness the President of the Royal Commission for the Exhibition of 1851, in approval of the conduct of that part of the Corps of Ordnance employed in that Service be promulgated in General Orders.

He feels confident that this high testimonial in approbation of the valuable Services of those immediately concerned will be received with feelings of pride and gratitude by the whole Corps of Ordnance.

CLARENCE PAGET.

To the Inspector-General of Fortifications.

Names of Officers Employed.
Lt.-Col. Sir Wm. Reid,
Capt. Westmacott,
Collinson,
Owen,
Gibb,
Lieut. Ward,
Pasley,
Tyler,
Walker,
G. H. Gordon,
Stopford,
E. F. Du Cane,
Crossman,
and the 5th and 22nd Companies of Royal Sappers and Miners.

MY LORD, *Windsor Castle*, 29*th October*, 1851.

I have the honour, as President of the Royal Commission for the Exhibition of 1851, to convey to your Lordship, both in my own name and in that of the Commissioners, our thanks for the cordial aid you lent us, in allowing several Officers of the Corps of Royal Engineers, and two Companies of Royal Sappers and Miners, to assist the Executive Committee in the arrangement and management of the Exhibition.

Her Majesty's Commissioners consider it due to the Officers of Royal Engineers, and to the Non-Commissioned Officers and Privates of the Royal Sappers and Miners, who have been thus employed, to express to your Lordship in strong terms the sense which they entertain of the admirable conduct of the whole body, whilst engaged in this novel, delicate, and responsible duty.

The Officers of Engineers have, in the able assistance rendered by them, afforded another instance of the useful manner in which a Military Body may be employed in Civil Services during a time of Peace.

The Royal Commissioners, being desirous of marking their sense of the share which the different persons employed in connection with the Exhibition have had in bringing it to a successful issue, have requested the various Civilians so employed to accept a certain sum of money in recognition of their services; but we have ascertained from Colonel Reid, that such a course would not be agreeable to the feelings of any of the Engineer Officers who have similarly given their assistance, and to whom we should have wished to offer a similar token.

With regard to the Non-Commissioned Officers and Privates, it gives me much pleasure to state, that at the period of the preliminary arrangements, when the labour required was sometimes excessive, their exertions were always cheerfully made. During the course of the Exhibition they practically demonstrated the great value of their Schools of Instruction, by the many useful plans which they drew; and by carefully acting always in subordination to the Civil Police Force, they established for themselves a character for good conduct and attention to the Exhibitors and Visitors greatly to the credit of the Corps to which they belong.

The Royal Commissioners have, therefore, thought fit to award a sum of 600*l*., to be laid out either in Drawing or Mathematical Instruments, or in other suitable lasting Memorials of their connection with the Exhibition for the Non-Commissioned Officers and Privates of the Royal Sappers and Miners, to be distributed by their Officers in such manner as your Lordship and the Inspector-General of Fortifications may approve, and we trust that you will give your sanction to the acceptance of these Testimonials to their good conduct.

I have, &c.,

(Signed) ALBERT,
President of the Royal Commission.

Field Marshal the Marquis of Anglesey,
Master-General of the Ordnance.

Return showing the Strength of the Corps of Royal Engineers and Royal Sappers and Miners employed at the Exhibition at the beginning of each Month, from September 1850, to December 1851; and also their Distribution to various Duties at the same periods.

Ranks, Distribution, &c.		1850				1851												Remarks.
		Sept.	October	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	August	Sept.	October.	Nov.	Dec.	
Officers of Royal Engineers	Lieut.-Colonel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	
	Captains	-	-	1	1	1	4	4	4	3	3	2	2	2	2	1	1	
	Subalterns	-	-	-	-	2	7	7	7	7	7	5	5	4	3	3	3	
	Total	1	1	2	2	4	12	12	12	11	11	8	8	7	6	4	4	
Royal Sappers and Miners. Strength.	Colour-Sergeants	-	-	-	-	-	-	1	2	2	2	2	2	2	2	2	-	
	Sergeants	-	-	-	-	-	2	4	6	4	6	5	6	4	3	2	1	
	Corporals	-	-	-	-	-	1	7	10	7	10	6	10	10	9	9	2	
	Second Corporals	-	1	2	2	1	3	10	13	8	14	10	13	10	9	8	3	
	Privates	-	5	5	9	11	31	142	158	160	155	137	144	142	132	154	17	
	Buglers	-	-	-	-	-	-	2	4	4	4	4	4	4	4	4	1	
	Total Strength	-	6	7	11	13	37	166	193	185	191	164	179	172	159	179	24	
Royal Sappers and Miners. Distribution.	General Superintendence	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	
	Clerks, Draughtsmen, &c.	-	3	4	8	9	15	12	25	17	17	17	22	22	17	7	7	
	In charge of Stationery, &c.	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	
	Testing Iron Work	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	
	Workshops	-	1	1	1	1	1	1	2	10	10	10	10	8	7	2	1	
	Lettering and laying out Passages	-	-	-	-	-	18	18	10	-		-	-	-	-	-	-	
	Receiving, arranging, unpacking, and removing Goods	-	-	-	-	-	-	44	46	23	28	-	12	3	5	121	4	
	Custom House Examination	-	-	-	-	-	-	24	24	6	6	4	4	2	2	10	2	
	In charge of Gates	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	
	In charge of Fire Engines, &c.	-	-	-	-	-	-	14	9	20	20	20	22	20	12	3	3	
	Ventilation	-	-	-	-	-	-	-	-	2	2	2	2	1	1	-	-	
	Class Superintendents	-	-	-	-	-	-	21	48	46	46	49	50	41	42	3	-	
	Cleaning British Side of Building	-	-	-	-	-	-	-	-	38	38	38	38	37	39	-	-	Part of day only.
	Collecting and arranging Specimens	-	-	-	-	-	-	-	-	-	-	-	-	13	4	4	4	
	On Guard	-	-	-	-	-	-	4	4	4	4	5	5	5	5	5	-	
	Cooks and Cooks' Mates	-	-	-	1	1	1	10	8	9	9	6	6	8	8	10	1	
	Sick	-	-	-	-	-	-	7	9	3	5	3	2	1	1	2	-	
	Absent from various Causes	-	-	-	-	-	-	-	1	3	1	2	-	4	3	3	-	
	Tailors		-	-	-	-	-	3	1	-	1	2	2	3	8	4	-	
	On Command	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	
	Total	-	6	7	11	13	37	166	193	185	191	164	179	172	159	179	24	

February 20, 1852.

Henry C. Owen, *Captain Royal Engineers.*

APPENDIX No. VII.

ILLUSTRATIONS of the DUTIES performed by the LOCAL COMMITTEES.

[*A complete List of the Local Committees is shown in Appendix* XL.]

[The general duties of the Local Committees are described in pages xxi, xxii of the Report and the mode in which they co-operated with the Executive Committee in the apportionment of the British Space, is described at p. xxxii. In illustration of these duties, the following summaries are given as furnished by the Secretaries of some of the Committees.

It may be explained that on account of the vast number of applicants for Space from the Metropolis, amounting to nearly one-half of those from the whole kingdom, special arrangements were made to ensure the best possible performance of the important duties of selection and rejection.

The Local Metropolitan Commissioners formed themselves into thirty Committees, corresponding to the thirty Classes into which the Exhibition was subsequently divided. The demands for Space were sorted on the same system, and those of each Class referred to their respective Committees, who dealt with them in precisely the same manner as the Provincial Local Committees, with the exception that an appeal laid from their decision in the first instance to a Council formed of the Chairmen of each Committee. The statement of the operations of the Marylebone Committee will illustrate the *earlier* stages,—that of the Sectional Committee Class V, the *later* stages of the operation of the Metropolitan Committees. The names of the Chairmen, Secretaries, and Treasurers of the Metropolitan *District* Committees are shown in Appendix XL.; the names of those who were appointed Local Commissioners and acted on the *Sectional* Committees, will be found in the general List of Local Commissioners, at the end of Appendix I.

The Rev. S. R. Cattley, and D. W. Wire, Esq., were Secretaries to the Council of Chairmen of the Metropolitan Sectional Committees, as well as of the original City Committee.]

SUMMARY of PROCEEDINGS of the BIRMINGHAM LOCAL COMMITTEE.

1850.

14 March. *Public Meeting* held at Town Hall, Birmingham, and *Local Committee* appointed; 81 members, consisting of leading manufacturers in principal trades, merchants, professional men, &c.—Chairman, the Mayor, William Lucy, Esq. *Sub-Committee* of 18 members, formed to arrange and carry out working details on approval by General Committee.

Resolution passed at same Public Meeting, recommending *Honorary Distinctions* in place of the Money Prizes proposed by the Royal Commissioners for the successful competitors at the Exhibition;—the recommendation was ultimately adopted.

SUBSCRIPTIONS.—Public Subscriptions commenced at same meeting "for the purpose of defraying Local Expenses, and aiding the Funds of the Exhibition in such manner and extent as the Local Committee should deem advisable."—Treasurer, James Moilliet, Esq., Banker, Birmingham.

A. 1,000 *Circulars* issued to the parties in town and neighbourhood likely to subscribe, applying for Subscriptions, and enclosing a note to be filled up with the intended amount of subscription, and returned to the Chairman.

25 May B. 1,000 *Second Circulars* issued, applying for Subscriptions as before, and containing a list of subscriptions to that date, £641 3*s.*

8 July C. 140 *Circulars* sent to all Subscribers whose promised subscriptions were not received, requesting an immediate payment to Treasurer, in compliance with wish of Royal Commissioners.

9 Aug. *Second Circular* sent to Subscribers to same effect.

12 Aug. *Remittance of* £500 sent to Royal Commissioners for the Fund of the Exhibition;—balance left with Treasurer £16 18*s.* 5*d.*

1851.

22 Feb. 160 *Circulars* sent to all Exhibitors who had not subscribed, applying for Subscriptions to the Local Fund.

27 Aug. *Final Accounts* passed at General Meeting of Local Committee and Subscribers, and account closed, as follows:—

Dr. Subscriptions promised	£908	0	6	*Cr.* Remittance to Fund	£500	0	
,, ,, not paid	11	6	6	Local Expenses . . .	396	14	
	£896	14	0		£896	14	0

*** **The capital letters in the margin refer to the printed forms used by the Birmingham Committee.**

1850.	
10 April. D.	EXHIBITORS.—500 *Circulars* issued to all Manufacturers, &c., considered likely to send articles to the Exhibition, enclosing a form to be filled up according to instructions of the Royal Commissioners, with the particulars of the articles to be exhibited and space required, to be returned to Local Committee on or before 1st May. These Circulars were followed up by personal applications from the Secretary and Members of the Sub-Committee—also by advertisements.
9 May.	124 *Returns from Exhibitors* sent to Royal Commissioners, applying for 9,071 *feet floor and counter*, 4,036 *feet wall—Total* 13,107 *square feet.*
25 Sept. E.	440 *Circulars* issued to Manufacturers, &c., with a form for return of articles to be exhibited, and space required, to be sent in before 26th October, according to directions of Royal Commissioners, and calling their attention to the advantages of becoming Exhibitors. Applications already received and forwarded to Royal Commissioners from 160 *Exhibitors* for 15,000 *feet space.*
25 Sept.	Returns sent to Royal Commissioners of classified trades represented in the applications from Exhibitors, and number in each trade.
31 Oct.	292 *Returns from Exhibitors* sent to Royal Commissioners, applying for 15,895 *feet floor and counter*, 6,267 *feet wall—Total* 22,162 *square feet.*
2 Nov.	275 *Vouchers of Allotments* to Exhibitors received from Royal Commissioners, (exclusive of Agricultural,) 9,000 *ft. floor and counter*, 12,000 *ft. wall—Total* 21,000 *square feet.*
25 Nov.	Interview of Chairman and Secretary with Executive Committee respecting the reduction in floor and counter space.
26 Nov. F.	275 *Circulars* issued to Exhibitors for an amended final return, on or before 3rd December, of the space required, and articles to be exhibited, reducing the space applied for, and exchanging floor for wall space as much as possible. Circulars followed up by frequent personal applications.
11 Dec.	252 *Final Returns from Exhibitors* sent to Royal Commissioners for 7,268 *ft. floor and counter*, 8,720 *ft. wall—Total* 15,988 *square feet.*
18 Dec. G.	*Certificate of Allotment* sent by Local Committee to each Exhibitor, of the space allotted, and articles to be exhibited.
1851.	
27 Jan.	*Plan of Arrangement* of Birmingham portion of the Exhibition sent to Royal Commissioners, according to widths of passages appointed.
27 Jan.	*Resolution* sent to Royal Commissioners, applying for all the plain counter and wall surface to be provided for the Exhibitors free of charge, according to the original promise.
27 Jan.	*Resolution* sent to Royal Commissioners, applying for extension of time for delivery of bright metal and damageable goods, from 1st March to 1st April. Time extended subsequently to 10th April.
5 Feb.	*Plan received* of space allotted for the majority of Exhibitors. *Resolution* passed and sent to Royal Commissioners, applying for the additional space necessary to allow for the loss of space occurring in arranging the several allotments, to give each Exhibitor a sufficient frontage; this being provided for by the portion of original allotment reserved for the purpose by the Local Committee, and reported at the time. *Corrected Plan* with five feet passages sent to Royal Commissioners.
17 Feb.	Interview of Chairman and Secretary with Executive Committee, respecting allotment of space. Court Arrangement fixed upon, and the additional space given, necessary to accommodate all the Exhibitors.
22 Feb.	*Detailed Plans* sent to Royal Commissioners of the arrangement of the Birmingham portion of the Exhibition, showing the particulars and dimensions of each Exhibitor's allotment, with application for the counters and walls to be provided for them free of charge, according to the plans.
28 Feb. H.	*Copy of portion of Plans* sent to each Exhibitor, showing the plan of his own allotment, and the neighbouring Exhibitors.
21 March.	*Circular* sent to Exhibitors about joining in the expenses of a uniform decoration of the counters and walls provided by the Royal Commissioners.—Proposal agreed to and executed by Taylor, upholsterer of Birmingham.
	Decoration and minor fittings were provided by the Local Committee for counters and walls of smaller Exhibitors.
21 March	*Final Notice* received from Royal Commissioners, and sent to all Exhibitors, about time and mode of delivering goods.
26 March	JURORS.—7 Jurors nominated by Local Committee, and reported to Royal Commissioners.

1851.	
23 Jan.	CATALOGUE.—*Catalogue Forms* sent to all Exhibitors by the Royal Commissioners to be filled up and returned on 31st January.
27 Jan.	*Resolution* sent to Royal Commissioners, applying for extension of time for Catalogue Returns to 1st March:—and agreed to.
5 Feb.	80 *Catalogue Returns* sent to Royal Commissioners.
18 Feb.	*Circulars* sent to Exhibitors for Catalogue Returns, followed up by frequent personal applications.
5 March.	*Catalogue Returns* all sent to Royal Commissioners, except 11.
26 March.	*Catalogue Returns* sent from remaining 11 Exhibitors.
1850.	
10 April.	*Resolution* passed and communicated to the Royal Commissioners, recommending the *Manufacturers' Names* of the articles exhibited to be in all instances published in the Exhibition.
15 April. I. J.	160 *Circulars* sent by the Chairman to the Mayors of the principal towns in the kingdom, containing a copy of the above resolution, and proposing a meeting of deputations from each of the large Manufacturing Districts, to discuss the question, and make a general representation to Royal Commissioners.
13 May. K.	*Interview of Dr. Playfair* with the Local Committee to consider the subject, when he was requested to propose to the Royal Commissioners a meeting in London of deputations from the various Local Committees, for public discussion of the question.
27 June.	*General Meeting of Deputations* from Local Committees with the Royal Commissioners to discuss the question; and subsequent decision of Royal Commissioners, that every Exhibitor should be required to state whether he was the manufacturer, or only the proprietor of the articles he exhibited.
13 Nov.	*Resolution* passed and forwarded to Royal Commissioners, recommending a protection, by provisional registration, to be obtained for all inventions in the Exhibition, during the period exhibited there.
1851.	
19 June. L.	Invitation to the Royal Commissioners, Foreign Commissioners, and Jurors of the Exhibition, to inspect the Manufacturing Processes of Birmingham, and to a Fête at the Botanic Gardens and Town Hall.

WILLIAM P. MARSHALL,
Local Secretary.

STATEMENT of the OPERATIONS of the MANCHESTER LOCAL COMMITTEE.

AT a meeting of the Clergy, Bankers, Merchants, and other Inhabitants of Manchester, convened by circular issued by his worship the Mayor, and held in the Mayor's parlour at the Town Hall on Tuesday, the 6th day of November 1849, JOHN POTTER, Esq., Mayor, in the Chair, it was *Resolved*—

"That this meeting fully and warmly approves of the Exhibition which has been proposed by His Royal Highness Prince Albert, and tenders to His Royal Highness its respectful thanks for the great interest which he has at all times displayed for the advancement of science, and agricultural and manufacturing art, and which is so strikingly evinced by the proposal now under consideration, which, in the opinion of this meeting, is alike worthy of the British nation and of the illustrious source from which it has emanated."

After a motion to the effect that all expenses ought to be paid by voluntary subscription, and not from the general taxes of the country, a Committee was appointed, consisting of seventy-five, subsequently increased to one hundred and nine gentlemen. This Committee subsequently held thirty-one meetings for the transaction of business, assembling usually at three o'clock P.M., at the Town Hall. At its second meeting, held on the 10th of January 1850, attention was called to the contract which had been entered into with the Messrs. Munday, when it was *Resolved*—

"That inasmuch as it is proposed to defray the necessary expenses by means of voluntary contributions from the nation, it is in the opinion of this meeting of the greatest importance to the success of the proposed Exhibition:

"1st. That no decision should be adopted by the Royal Commissioners pledging themselves to the ratification of the Provisional Contract until an opportunity has been afforded to the country to make known its sentiments thereon.

"2ndly. That the giving of prizes should be an open question to be hereafter determined by the Royal Commissioners when public opinion shall have been ascertained."

At a meeting, held on the 16th day of January 1850, it was *Resolved*—

"That in the opinion of this Committee it is not desirable to appoint local Commissioners for this town and district; but the Committee will be prepared at any time to appoint gentlemen to attend in London as its representatives, and on its behalf, if personal conference shall be deemed desirable."

On the 30th of January 1850, a Sub-Committee was appointed for the purpose of soliciting subscriptions. This Sub-Committee consisted of sixteen gentlemen; an exceedingly active canvass was immediately set on foot, the result being reported at the meetings, when the members consulted together as to what steps it was expedient to take. After thirteen meetings the subscriptions amounted to the sum of £4,721 8*s*. 1*d*., of which £4,150 16*s*. 4*d*. were transmitted to the credit of the Treasurers of the Royal Commission at the Bank of England, the remainder being the amount expended in conducting the business of the local Committee.

In June a deputation consisting of Messrs. Entwisle, Schwabe, and Whitworth proceeded to London to the meeting of the Royal Commission on the 27th. Information as to the intentions of the Commission on many points was required, especially as to how far motive power for articles of machinery would be provided by the Commission; as to whether it was the intention to exhibit articles of ordinary and every-day production, or the most perfect specimens that it would be possible to produce; also as to the probable space which would be allowed to Manchester, &c.

Early in June 1850 the business had increased so greatly, that it was resolved to appoint three Sectional Committees, each in its own province undertaking to use its best endeavours to ensure the exhibition of the best and most interesting specimens of the skill and ingenuity of the manufacturing industry of the district, and to confer with and assist those intending to exhibit articles in all necessary arrangements for their exhibition in London. The three sections into which the manufactures of the district were divided were as follows:—

1. Machinery.
2. Plain and Fancy Cottons.
3. Silks, Prints, and Coloured Fabrics.

At the same time Mr. Thomas Worthington was appointed Acting Secretary to the local Committee.

The duties of the Sub-Committees were varied and laborious, especially the Mechanical Committee. Its meetings were constant, and frequently continued for several hours. Very active steps were taken to ensure a large and varied illustration of the production of the numerous foundries and mechanists' shops in the town, but the proprietors were all found reluctant to pledge themselves to exhibit, from an uncertainty as to whether space would be *guaranteed* for articles they might prepare; many producers who were desirous to exhibit objecting, that unless security were given that machinery made expressly for the purpose, and in many cases involving a large outlay of capital, would certainly be admitted, the whole labour and expense would be incurred to no purpose.

In consequence, a communication was made on the 12th of August 1850 to the Royal Commission, stating this difficulty, and requesting that an allotment of space might be granted to this Committee, which it should have the power of allotting to contributors at its own discretion. In compliance with this request a space of 10,000 square feet of horizontal space was temporarily guaranteed to the Committee, which was immediately allotted to those exhibitors who had applied for space. On the 31st of October the demands for space in this section exceeded 19,500 square feet on the floor. The space finally granted to Manchester in this section was only 14,000 feet on the floor, in consequence of which it became necessary to reject 5,500 square feet of machinery.

The Committee immediately commenced a series of sittings for the examination of the articles which were to be exhibited. Each exhibitor was required to attend, and to bring either the actual article or models and diagrams fully explaining all particulars of his intended contribution.

After a most laborious and careful inspection, in the course of which it was found that many articles might be put into smaller compass than required by the applications, the demands were compressed into the 14,000 feet granted, and the vouchers were returned to London.

The question of shafting was frequently discussed, and several communications on the subject made to Her Majesty's Commissioners.

At a meeting on the 2nd of October very great disappointment was expressed that the new Designs Act did not afford protection from piracy to exhibitors of mechanical inventions, and a resolution to this effect was forwarded to the Royal Commission.

An attempt was made about this time to raise a fund to assist artisans and others who were unable to send articles to the Exhibition from want of pecuniary resources. It was stated at the time that many useful inventions would thus probably be brought out by men who could not afford to do so without such assistance. A small sum was in consequence placed in the hands of the Secretary of the Working Men's Committee, but no fund was established for the purpose. The working men, indeed, generally refused to exhibit on finding that mechanical inventions had no security from piracy.

On the 31st of October 1851, the demands for horizontal space were as follows:—

Sect. I., 800 sq. ft.; *Sect. II.*, 19,500 sq. ft.; *Sect. III.*, 4,006 sq. ft.; *Sect. IV.*, 94 sq. ft.

The space granted after these returns were transmitted was as follows:—

Sect. I., 480 sq. ft.; *Sect. II.*, 14,000 sq. ft.; *Sect. III.*, 2,400 sq. ft.; *Sect. IV.*, 120 sq. ft.

The vertical space granted was 13,000 feet, which somewhat exceeded the demands.

In the beginning of January 1851 a deputation consisting of Messrs. Salis Schwabe, Ralcolm Ross, W. Fairbairn, E. T. Bellhouse, attended by Mr. Thomas Worthington, the Acting Secretary, proceeded to London to obtain definite information on a number of points, about which inquiries were constantly being made by local exhibitors, and which the Committee did not feel itself in a position to answer. Some of the questions thus presented were as follows:—Whether the grouping would be as to class of manufacture or as to district? Particulars as to the counters, walls, passages, &c., and whether each contributor would have to provide his own fittings, or whether they would be provided by the Commission?

When would be the latest date at which articles for exhibition must be sent? Particulars as to shafting; how far provided by Commission, &c. Who is to be at the expense of working "Machinery in Motion?" As to travelling clubs, &c., &c.

About the middle of February 1851 the number of applications to the local Committee for extension of time for the delivery of articles in the building, from the 1st of March to the 1st of April, was so great that the local Committee sent Mr. Worthington, their Acting Secretary, to London to confer personally with the Executive Committee upon the subject, the Committee offering to pledge itself that the whole of the articles to which such an extension is granted should be delivered in the building on or before that day.

Early in March a portion of the Catalogue proof was sent down for correction. These were submitted to each exhibitor, who made his own corrections on the margin.

On the 19th of March the Committee met to nominate gentlemen as Jurors in the several Classes, as requested by Her Majesty's Commission.

Early in June, by the request of the Royal Commission, the Committee made a further collection of the staple manufactures of the district, it being considered that the articles sent from Manchester did not sufficiently illustrate the manufactures of the district. Accordingly a collection, to which many of the most important firms contributed, was made, and forwarded immediately.

THOMAS WORTHINGTON, *Secretary.*

STATEMENT of the OPERATIONS of the MARYLEBONE LOCAL COMMITTEE.

THE Marylebone Committee was formed in May, 1850, in pursuance of resolutions adopted at a public meeting convened by the inhabitants of the borough (which comprises the three parishes of St. Marylebone, St. Pancras, and Paddington), and consisted of sixty members, including Lord Portman, the Churchwarden, the Members for the Borough, other Members of Parliament, Gentlemen and Tradesmen resident in the borough. Five gentlemen were appointed Treasurers to the Committee, and the bankers were authorized to honour the cheques of any two of them countersigned by the Secretary.

In the first place, the resolutions adopted at the public meeting, with the names of the Committee, were advertised in the public newspapers, with a request to the inhabitants to co-operate in forwarding the undertaking, and notifying that subscriptions would be received by the bankers, all the members of the Committee, and the Secretary.

A Sub-Committee was also appointed to divide the borough into districts for the purpose of collecting subscriptions, and to report upon the employment of collectors, which Sub-Committee recommended the appointment of the parochial collectors for the office of collectors to the Committee, they being persons whom the public were acquainted with; and the borough was accordingly divided, and the collectors appointed. The remuneration to the collectors was 5*l.* per cent. commission on all subscriptions received by them, and one penny for each packet delivered at the respective houses in the district. The report of the public meeting was printed, and 30,000 copies distributed, with a letter from the Secretary soliciting subscriptions, and in a few days after the delivery thereof the collector called for a subscription.

The subscriptions announced to the Committee were from time to time advertised in the several public papers, and further subscriptions solicited. At the same time, advertisements were issued for intending exhibitors to make returns of the articles they intended to exhibit, and forms for that purpose were furnished on application to the Secretary, who, as the applications were received, forwarded copies to the Executive Committee. The Secretary communicated with the manufacturers and all persons resident in the borough likely to be exhibitors, urging them to make application for space, and inducing others to become exhibitors.

The Committee nominated twenty-four gentlemen in different departments to Her Majesty's Commissioners as Local Commissioners, and they were appointed accordingly.

The Marylebone Committee, for the purpose of selecting and rejecting articles to be exhibited, was grouped with other metropolitan Committees; and the Local Commissioners nominated by them formed part of the thirty classes in which the Committees of selection and rejection consisted, and it is presumed their duties will be detailed in the operations of those Committees.

W. E. GREENWELL, *Secretary.*

STATEMENT of the PROCEEDINGS of the METROPOLITAN COMMITTEE—CLASS V.—(MACHINES for DIRECT USE.)

THE Committee was composed of eighteen gentlemen, who were returned as Local Commissioners from the thirty-two Metropolitan District Committees. They commenced their labours on the 5th December 1850, and terminated on Thursday, 27th March 1851, after having had eight meetings in thirteen weeks, the meetings being well attended, mostly held at the rooms of the Society of Arts, Adelphi, in which they had been kindly permitted to assemble, everything having passed off most amicably and with great satisfaction to all parties.

At the first hurried preliminary meeting at the London Coffee House, Ludgate Hill, the three members of the Committee then present nominated Mr. Henry Maudslay as their chairman, which was reported accordingly; but at the first regular meeting of the Committee he resigned the appointment, feeling how important the position really was, but was then unanimously re-elected.

The horizontal space allotted to this Committee from the 100,000 superficial feet granted to the Metropolis was 7,000 superficial feet, and at one time upwards of 15,000 superficial feet was demanded. In order to reduce the demands of each applicant within the bounds prescribed, the Committee divided into Sub-Committees, and took London in sections, examining each and every article to be exhibited. These Sub-Committees reported to the whole Committee, who sanctioned, cancelled, or reduced the demand for space, or sent the voucher to the Committee to which it belonged. The latter course was often rendered necessary by the insufficient manner in which articles were described; as an example, space was demanded 1 ft. × 1 ft. to exhibit "a piece of machinery in motion," which afterwards proved to be a watch the size of a pea.

In 1850, when the Prospectuses for the Exhibition were issued, protection was offered and promised to Inventors, which afterwards was found to be impossible to give, and provisional registration was allowed instead; but before this could come into force, 75 Exhibitors had withdrawn their demands for space, and we then found we had not enough to fill up the space allotted to us. The Committee received an intimation from the Executive Committee that a lucifer-match making machine would be a very desirable thing to exhibit, and for six weeks the Committee was in communication with every lucifer-match maker in London,—not one of whom would exhibit.

So much space being still to spare, the Committee, after considerable trouble, got Mr. Nasmyth to send his steam-hammer, Mr. Garforth his rivetting machine, and Messrs. M'Nicholl and Vernon their steam travelling crane, &c. &c.; these three received each a prize. By sanction of the Committee, a space of 300 superficial feet was reserved till the last, in the chairman's name, for any desirable objects that might be found to have been excluded by want of space from other Committees. By these means we obtained a most interesting collection, consisting of 60 motive-power machines of all sorts, and nearly all the steam-engines which were at work in the Building were exhibited from London.

The Committee, in consideration of the great number of steam-engines, and of such different sorts being shown from London, and the peculiar and valuable information collected, and in order to assist the Jury in their future examinations, ordered the Catalogue of Engines, and their labours, to be printed, which was done accordingly, and copies sent to His Royal Highness the President, and members of the Royal Commission, Executive Committee, &c.

The Committee, according to request, nominated five gentlemen to serve on the Jury, and three were elected on Juries V. and VI.

To prevent the members being accused of favouring some parties in their speciality to the detriment of others, the Committee wrote to all the engineers and machine manufacturers of London, who had not made a demand for space to exhibit; some answered, refusing; and some did not answer. The Committee sincerely hope and believe that they have conducted the business impartially, and only *worked for*, and *looked to*, the perfection and credit of the exhibits from London in the Great Exhibition, and for the future advantages to be derived therefrom.

HENRY MAUDSLAY, *Chairman.*

4 *Cheltenham Place, Lambeth.* *17th April* 1852.

APPENDIX No. VIII.

List of Commissioners, &c., appointed Abroad to Promote the Exhibition of 1851 in London.

FRANCE.

La Commission générale, instituée par arrêtés des 28 Février et 11 Mars 1850, s'est, dans sa séance du 16 Mars, divisée en 6 Commissions spéciales, dont voici les attributions et la composition :*

1° *Commission des Affaires administratives et de la Correspondance.*

M. Charles Dupin, de l'Académie des Sciences, Président de la Commission Générale.
M. de Lesseps, Directeur des Consulats et des Affaires Commerciales au Ministère des Affaires Etrangères.
M. de Lavenay, Secrétaire-Général du Ministère de l'Agriculture et du Commerce.
M. Monny de Mornay, Chef de la division de l'Agriculture.
M. Fleury, Chef de la division du Commerce Extérieur.
M. Delambre, Chef de la division du Commerce Intérieur.
M. Chemin-Dupontès, Chef du Bureau des Faits-Commerciaux, Secrétaire de la Commission Générale.

2° *Commission des Arts Agricoles.*

M. Hericart de Thury, de l'Académie des Sciences.
M. Tourret, Vice-Président du Jury Central.
M. Payen, de l'Académie des Sciences.
M. Armand Seguier, de l'Académie des Sciences.
M. de Kergolay, Membre de la Société Nationale et Centrale d'Agriculture.
M. Monny de Mornay.

3° *Commission des Arts Mécaniques et de Précision.*

M. Pouillet, de l'Académie des Sciences.
M. Armand Seguier, de l'Académie des Sciences.
M. Morin, de l'Académie des Sciences.
M. Combes, de l'Académie des Sciences.
M. Michel Chevalier, Ingénieur en Chef des Mines.
M. le Chatelier, Ingénieur des Mines.

4° *Commission des Arts Chimiques et Métallurgiques.*

M. Balard, de l'Académie des Sciences.
M. Hericart de Thury.
M. Payen.
M. Michel Chevalier.
M. Ebelmen, Directeur de la Manufacture Nationale de Sèvres.
M. le Chatelier.

5° *Commission des Tissus.*

M. Mimerel, Président de la Commission des Tissus au Jury Central.
M. Legentil, Président de la Chambre de Commerce de Paris.
M. Barbet, Membre du Jury Central de l'Industrie Nationale.
M. Sallandrouze de Lamornaix, Membre du Jury Central.
M. de Lavenay.

6° *Commission des Beaux-Arts des Arts divers.*

M. Fontaine, de l'Académie des Beaux Arts.
M. Leon de Laborde, de l'Académie des Beaux Arts.
M. Armand Seguier.
M. Ebelmen.
M. de Lavenay.
M. Delambre.

Dans une deuxieme séance qui a eu lieu le 20 courant, ont été élus Présidents des diverses Commissions :—

I. Commission Administrative	M. Charles Dupin.
II. Commission des Arts Agricoles	M. Hericart de Thury.
III. Commission des Arts Mécaniques et de Précision	M. Combes.
IV. Commission des Arts Chimiques et Métallurgiques	M. Hericart de Thury.
V. Commission des Tissus	M. Legentil.
VI. Commission des Beaux Arts et Arts divers	M. Fontaine.

Tous les renseignements destinés à la Commission doivent être adressés au Ministère de l'Agriculture et du Commerce.

BELGIUM.

President.—M. de Brouckere, Bourgmestre de la Ville de Bruxelles, Membre de la Chambre des Représentants, Président du Jury l'Exposition Industrielle de 1847.
Membres.—M. Bellefroid, Chef de la Division de l'Agriculture au Départment de l'Intérieur.
M. Benôit Faber, Délégué de la Chambre de Commerce de Namur.
M. Capitaine, Fabricant à Liège, délégué de la Chambre du Commerce de cette Ville.
M. Claes (Paul) de Lembecq, Agronome.
M. Kindt, Inspecteur pour les Affaires Industrielles, au Départment de l'Intérieur.
M. Kums, Fabricant à Anvers, délégué par la Chambre de Commerce de cette Ville.
M. Manilius, Membre de la Chambre des Représentants, délégué par la Chambre de Commerce de Gand.
M. Overman, Fabricant à Tournay, délégué par la Chambre de Commerce de cette Ville.
M. Partoes, Directeur du Commerce Extérieur et des Consulats au Départment des Affaires Etrangères.
M. Quoilin, Secrétaire Général au Départment des Finances.
M. Romberg, Chef de la Division de l'Industrie au Départment de l'Intérieur.
M. Simonis (Armand), Président de la Chambre de Commerce de Verviers.
M. Spitaels, (Ferdinand), Membre du Sénat, délégué par la Chambre de Commerce de Charleroy.
M. Van Hooff, Fabricant à Saint-Nicolas, délégué par la Chambre de Commerce de cette Ville.
M. Vercruyse-Bruneel, (H.), Fabricant à Courtray, délégué de la Chambre de cette Ville.
M. Verreyt, Fabricant à Bruxelles, délégué par la Chambre de Commerce de cette Ville.

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* See the Moniteur 21 March 1850.

APPENDIX No. VIII.

NETHERLANDS.

President—M. Jonkhur D. R. Gevers Deÿnoot, Directeur de la Société pour l'Encouragement de l'Industrie à Haarlem, demeurant à Rotterdam. .

Membres—M. le Docteur G. Simons, Directeur de l'Académie Royale à Delft.

M. D. C. Buchler, Membre de l'Institut Royal des Pays-Bas, Vice-Président de l'Académie Royale des Beaux Arts à Amsterdam.

AUSTRIA.—A Commission formed, consisting of the following Members:—

Präsident—Herr Andreas Ritter v. Baumgartner, k. k. geheimer Rath, Sections-Chef im Ministerium der Finanzen, Vice-Präsident der k. k. Akademie der Wissenschaften in Wien, &c.

Präsidentens-Stellvertreter—Herr Michael Ritter v. Spörlin, Fabriksinhaber, Mitglied der Wiener Handelskammer.

Vertreter der Ministerien—Herr Dr. Karl Hock, Ministerialrath im Ministerium des Handels.

Herr Dr. Moriz Ritter v. Besteneck, Sectionsrath im Ministerium der Finanzen.

Herr Joseph Kudernatsch, Sectionsrath im Ministerium des Bergbaues und der Landes-Cultur.

Schriftführer—Herr Heinrich Henking, Ministerial-Secretär. Commissions-Mitglieder für Nieder-Oesterreich.

Herr Theodor Hornbostel, Fabriksinhaber, Präsident der Wiener Handelskammer und des Nieder-Oesterreichischen Gewerbs-Vereines.

Herr Carl Rösner, Professor der Baukunst und provisorischer Präsident der k. k. Akademie der Künste in Wien.

Herr Carl Ritter v. Kleyle, Sections-Chef und Ministerialrath im Ministerium für Landes-Cultur.

Herr Adam Ritter v. Burg, k. k. Regierungsrath, Director des Polytechnischen Institutes und Vice-Präsident des Nieder-Oesterreichischen Gewerb-Vereines.

Herr Paul Sprenger, Sectionsrath der General-Baudirection.

Herr A. Steinheil, Sectionsrath im Ministerium des Handels.

Herr Jacob Regenhart, Kaufmann und Fabriksinhaber,
Herr Johann Mayer, Groszhändler und Fabriksinhaber,
Herr Ludwig Damböck, Fabriksinhaber,
Herr Joseph Zeisel, Fabriksinhaber,
Mitglieder der Wiener Handelskammer.

Herr Ludwig Hardtmuth, Fabriksinhaber,

Herr Gustav Höfken, Sectionsrath im Ministerium des Handels.

Herr Franz Freiherr von Leithner, k. k. Regierungsrath und Fabriks-Director.

Herr Alois Auer, k. k. Regierungsrath und Director der Staatsdruckerei.

Herr Anton Schrötter, Professor der Chemie, Mitglied der Akademie der Wissenschaften in Wien.

Herr Ludwig von Brevilliers, Fabriksinhaber.

Herr Georg Endris, Groszhandlungs-Dirigent.

Herr Theodor Gulchern, Fabriksinhaber.

Herr Carl Leistler, Tischlermeister.

Herr Matthaus Edler von Rosthorn, Gewerke.

Herr Heinrich D. Schmidt, Fabriksinhaber.

Herr Otto Schumann, Kaufmann.

Herr Dr. Wilhelm Schwarz, Secretär der Wiener Handelskammer.

Herr Emil Seybel, Fabriksgesellschafter.

Herr Johann B. Streicher, Claviermacher.

Herr Ernst Weidinger, Fabriks-Director.

Commissions-Mitglieder für Böhmen.

Herr Franz Graf von Harrach, Fabriksinhaber und Präsident des böhm. Gewerb-Vereins,
Herr Carl Balling, Professor der Chemie & Vice-Präsident des böhm. Gewerb-Vereins,
Herr Johann B. Riedel, Kaufmann & Vorsteher des Handelstandes,
Herr Dr. Carl Kreutzberg, Fabriksinhaber,
Herr B. von Partheim, Fabriksinhaber,
in Prag.

Herr Franz Richter, Fabriksinhaber,
Herr Johann Liebig, Fabriksinhaber und Präsident des Gewerb-Vereines,
Herr Wilhelm Sigmund, Fabriksinhaber,
in Reichenberg.

Herr Carl Fischer, Fabriksinhaber in Pirkenhammer.

Herr Eduard Lietenberger, Fabriksinhaber in Reichstadt.

Herr A. D. Mayer, Fabriksinhaber in Winterberg.

Herr M. Mayer, Bergswerks-Director in Neu-Joachimsthal.

Herr Joh. Reinhold, Fabriksinhaber in Warnsdorf.

Commissions-Mitglieder für Mähren und Schlesien.

Herr Hugo Furst von Salm-Reifferscheid-Krautheim, Fabriksinhaber und Präsident der Mährisch-Schlesischen Landwirthschaftsgesellschaft.

Herr Leopold Haupt, Fabriksinhaber.

Herr Florentin Robert, Fabriksinhaber in Selowitz.

Herr Philipp Scholler, Fabriksinhaber in Brünn.

Herr Heinrich Zurhelle, Fabriks-Director in Namiest.

Commissions-Mitglieder für Galizien die Bukowina und das Gebiet von Krakau.

Herr Alfred Graf v. Potocky, k. k. geh. Rath und Fabriksinhaber.

Herr Joseph Ruszegger, k. k. Gubernialrath und Bergwerks-Director in Wieliczka.

Herr Carl Hausner, Groszhändler in Brody.

Herr Vincenz Kirchmayer, Groszhändler, in Krakau.

Herr Florian Seiger, Groszhändler, in Lemberg.

Commissions-Mitglieder für Ungarn, Croatien, Slavonien, Siebenbürgen die Woiwodina, das Temescher Banat und die Militärgränze.

Herr Graf Joh. Barkotzy, Grundbesitzer,
Herr August L. Krauze, k. k. Cameralrath und Fabriken-Inspector,
Herr Christ. J. Malvieux, Groszhändler,
Herr Samuel v. Joob, Güter-Director,
in Pesth.

AUSTRIA—*continued.*

Herr Joseph Ritter v. Ferro, k. k. Sectionsrath und Ministerial-Commissär, in Nagy-Banya.
Herr Carl Walburg, Kaufmann, in Kronstadt
Herr Carl Meynier, Fabriksinhaber, in Fiume.
Herr Auton Tschopp, Groszhändler, in Carlstadt.

Commissions-Mitglieder für Stiermark, Kärnthen, Krain, Triest, Görz, Istrien, and Dalmatien.

Herr Doctor Franz Hlubeck, Professor und Secretär der Steiermärkischen Landwirthschafts-Gesellschaft, in Gratz.
Herr Dr. Carl Peintinger, Bergwerks-Director,
Herr Peter Tunner, Vorsteher der montanistischen Lehrenstaldt, } in Vordernberg.
Herr Thomas Ritter v. Moro, Fabriksinhaber,
Herr J. Schelieszniog, Bergwerks-Inspector, } in Klagenfurt.
Herr Heinrich Costa, Oberamts-Director,
Herr William Moline, Fabriks-Director, } in Laibach.
Herr Kaliman Ritter v. Minerbi, Groszhändler und Fabriksinhaber,
Herr Carl Regensdorff, Groszhändlungs-Dirigent, } in Triest.

Commissions-Mitglieder für das Lombardisch-Venetianische Königreich.

Herr Graff Archinti, Fabriksinhaber,
Herr Ernst v. Mylius, Groszhandlungs-Gesellschafter,
Herr Albert Keller, Fabriksinhaber, } in Mailand.
Herr Joseph Ant. Reali, Fabriksinhaber,
Herr Peter Bigaglia, Fabriksinhaber,
Herr Ferdinand Zucchelli, Kaufmann, } in Venedig.

Commissions-Mitgleider für Tirol und Vorarlberg

Herr Caspar Litti, Fabriks-Director,
Herr Josesh Mayer, Kaufmann. } in Innsbruck.
Herr Melchior Jenny, Fabriksinhaber,
Herr Johan Kennedy, Fabriksinhaber,
Herr Anton Rhomberg, } in Vorarlberg.
Herr Jos. Bettini, Fabriksinhaber, in Roveredo.
Herr Johann Putzer, Groszhändler, in Botzen.

Commissions-Mitglied für Ober-Oesterreich und Salzburg.

Herr Johann Ritter v. Dierzer, Fabriksinhaber in Linz und Vorsteher der Delegation des Nieder-Oesterreichischen Gewerb-Vereines.
Herr Dr. L. Kompasz,
Herr Math. Lechner, } Delegirte des Nied Oesterr. Gewerb-Vereines inSteyer.
Herr Carl Mitterbacher, Fabriksinhaber, in Salzburg.

PRUSSIA.—A Commission formed, consisting of the following Members:—

Geheimen Ober-Finanzrath von Viebahn.
Geheimen Regierungsrath Delbruck.
Director des Königlichen Gewerbe-Instituts, Dr. Druckenmuller.
Professor Dr. Schubarth.
Fabriken Kommissionsrath Wedding.
Fabriken Kommissionsrath Brix.
Geheimen Kommerzienrath Carl.
Geheimen Kommerzienrath Baudouin
Herr F. Zimmermann.
Herr Weigerl.
Herr Oertling.
Herr Dr. Ludersdorf.
Herr Bidtel.

BAVARIA.—The Polytechnic Society of Munich.

SAXONY.—M. le Dr. Weinlig, Conseiller intime au Ministère de l'Intérieur.

HAMBURGH.—The Society for the Promotion of Arts and the Useful Professions.

Dr. W. A. Kramer (*Secretary*).

BREMEN.—Dr. Henry Groning.

LUBECK.—The Trades Committee of the Patriotic Society.

WURTEMBURG.—Herr Sautter, President of the Central Society for Industry and Trade.

GRAND DUCHY OF HESSE DARMSTADT.

Privy Councillor Eckhardt, President of the Trades' Union of the Grand Duchy of Hesse.

NASSAU.—The Chamber of Commerce of Nassau, through its President the Assessor Odernheimer of Wiesbaden.

HANOVER.—Art-Union of Hanover.

SWITZERLAND.—A Commission formed, consisting of the following Members:—

Dr. Schneider, of Berne (*President*).
M. Bolley, Professor, of Aarau.
M. Colladon. Professor, of Geneva.
Major Courvoisier, Neuchatel.
M. Jenni, Manufacturer, of Glaris.
M. Sarasin, of Bale.
M. Sulzberger, Manufacturer, of St. Gal.
M. Ziegler Pellis, of Winterthur.

RUSSIA.

Imperial Commission of St. Petersburg.

Presidents.	Tengoborski, Member of Council of State. Brock, Joint Minister of Finance.	
Rennenkampf, Major-General		Members of Council of Manufactures.
Reichel		
Hamel		
Gouchkoff		

Levshine, Direc
culture.
Zablotsky.
Peterson.
De Lode.
Inchantzoff, *E*

Commission of Odessa.

Sokoloff	Members of Agricultural Society of Odessa.
Markevitsch	
Raike	
Wistmacher	
Dismet	
Loginoff	
Rosen	
Noinitzky	
Obnisky	

Maass.
Menzer.
Passudoff.
Michaeloff.
Posochoff.
Isakovitsch.
Mangoudy.
Mazian Pasto.
Bernstein.

SWEDEN.—M. D. C. de Skogman, Président du Collège du Commerce.

NORWAY.

M. Langberg, Professor of Natural Philosophy.
Colonel Garben, of the Engineers.
M. Yarbell, Mechanician.
Captain Vergeland, of the Artillery.
M. Schinner, Architect.
M. Vergman, Ornamental Painter.

Who together form the direction of the Society of Arts at Christiania.

DENMARK.—A Commission formed, consisting of the following Members:—

M. Garlieb.
Professor Hetsch.
M. Rothe.
M. J. Hillman.
M. P. J. Winstruk.
Professor Hummel.

TUSCANY.—A Commission formed, consisting of the following Members:—

President.—The Chevalier Baldasseroni, Minister of Finance and Commerce.
Sir G. B. Hamilton, H.B.M. Minister Plenipotentiary at the Court of Tuscany. (Since dead.)
Signor Corridi, Director of the Technical Institute of Florence.
The Chevalier Brocchi, Ex-Director of ditto.
The Marquis Ridolphi, Deputy of the Academy of the Georgofili.
Mr. Horace Hall, Deputy of the Chamber of Commerce of Florence.
Count F. De Lardenel, Deputy of the Chamber of Commerce of Leghorn.
The Marquis Mazzaroso, Deputy of the Chamber of Commerce of Lucca.

NAPLES.—A Commission formed, composed of Members of the Reale Istituto d'Incorraggiamento.

SARDINIA.—A Commission formed, consisting of the following Members.—

Chevalier de Santa Rosa, Minister of Commerce.
Chevalier Giulio, Senator.
Sir Ralph Abercromby, H. M. Minister Plenipotentiary to the Sardinian Court.
Count Nonis di Pollone, Senator, Vice-Chairman of the Chamber of Agriculture and Commerce in Turin.
Count Camillo di Cavour, Member of the Sardinian Parliament, and Minister of Finance.
Lewis Bolmida, Member of the Sardinian Parliament.
George Sella, Member of the Sardinian Parliament.
Joseph Guillot, Silk Manufacturer.
Gabriel Moncalvo, Cabinet Maker.
Sobrero Ascanius, Professor of Chemistry at the University of Turin.
Baron Profrimo, Capo Divisione, Department of Agriculture and Commerce.

SPAIN.—A Commission formed, consisting of the following Members:—

Commissioners.

El Almirante Duque de Veragua (*President*)
Don Salustiano de Olozaga.
Don Antonio Ramon Zarco del Valle.
Don Juan Alvarez y Mendizabal.
Don Alejandro Olivan.
Don Jose Caveda.
Don Cristoval Bodin.
Don Joaquin Alfonso.
Don Antonio Guillermo Moreno.
Don Juan Manuel Calderon.
Don Buenaventura Carlos Ariban.
Don Manuel Garcia Bavranallana.
Don Cipriano Segundo Montesino.
Ex^{mo}. Sr. Don Mariano Miguel Reguoso.
Ex^{mo}. Sr. Don Juan Bravo Murillo.

Committee.

Don Salustiano de Olozaga (*President*).
Don Juan Alvarez y Mendizabal.
Don Antonio Ramon Zarco del Valle.
Don Manuel Garcia Bavranallana.
Don Cipriano Segundo Montesino (*Secretary*).

TURKEY.—A Commission formed, consisting of the following Members:—

President.

Ismael Pacha, Minister of Commerce.

Vice-Presidents.

Salik Bey, Assistant of the Minister of Commerce.
Said Bey, Secretary to the President.
M. Lafontaine, Secretary to correspond with England.

Members.

Nejeeb Effendi.
Hajji Bekir Aga.
Yusuf Hajjar.
Seid Mustapha Effendi.
Hajji Hashim Zadeh Emin Effendi.
Balmoomji Zaden Salik Effendi.
Gorghi Alesioglon.
Yacoob Vartores.
Elia Hava.

GREECE.—A Commission formed, consisting of the following Members:—

M. Lucas Ralli (*President*).
M. Simos.
M. C. N. Dossios.
M. le Capitaine G. Tombazis.
M. L. Caftangioglu.
Professor Landerer.
M. C. G. Douroutti.
M. G. P. Scuzès.
M. Dommando.
M. S. A. Spiliotakis (*Secretary*).

PERSIA.—The Mellik-oot-toojjar, Chief of the Merchants.

CHILI.—The following Gentlemen have been appointed to correspond with the Commission in London:—

Don Pedro Nolasco Mena, Chairman of the Society of Agriculture and Beneficence.
Don Ignacio Domeyko, Professor of Chemistry.
Don Julio Jarriez, Director of the School of Arts and Trades.

PERU.

The Minister of the Home Department (*President*).
Don Luis Fonçeca
Don Nicolas Pierola.
Don Nicolas Rodrigo.

VENEZUELA.

A Commission formed. The Royal Commissioners to communicate through Mr. Milligan, Consul-General for the Government of Venezuela.

UNITED STATES.

The National Institute, in conformity with the wish of the Government, have appointed the following Gentlemen to form a Central Committee to correspond with the different Societies and Local Committees throughout the United States.

Hon. Millard Fillmore, President of the United States, Chancellor of the Regents of the Smithsonian Institution.
Colonel Peter Force, President of the National Institute.
Hon. Jas. A. Pearce, United States' Senate, Member of the Board of Regents of the Smithsonian Institution.
Hon. Levi Woodbury, Member of the National Institute, Associate Justice of the Supreme Court of the United States.
Commodore Lewis Warrington, United States' Navy, Member of the National Institute, Chief of the Bureau of Ordnance and Hydrography.
Professor Joseph Henry, Vice-President of the National Institute and Secretary of the Smithsonian Institution.
Professor Walter R. Johnson, Corresponding Secretary of the National Institute.
Professor Alexander D. Bache, Member of the National Institute, Member of the Board of Regents of the Smithsonian Institution, and Superintendent of the Coast Survey.
Commander Charles Wilkes, United States' Navy, Member of the National Institute, late Commander United States' Exploring Expedition.
Hon. W. W. Seaton, Member of the National Institute, Mayor of Washington.
Hon. Jefferson Davis, United States' Senate, Member of the Board of Regents of the Smithsonian Institution.
Lieutenant Matthew F. Maury, United States' Navy, Vice-President of the National Institute, and Superintendent of the National Observatory.
Charles F. Stansbury, Esq., Recording Secretary of the National Institute.
J. James Greenough, Esq., Member of the National Institute.
Colonel J. J. Abert, Member of the National Institute, Chief of the Topographical Bureau.
General Jos. G. Totten, Vice-President of the National Institute, Chief Engineer United States' Army.
Thomas Ewbank, Esq., Commissioner of Patents.
William Easby, Esq., Treasurer of the National Institute.
Dr. Leonard D. Gale, Member of the National Institute, Examiner of Patents.
J. C. G. Kennedy, Esq., Member of the National Institute, Superintendent of Census.
Ezra C. Seaman, Esq., Member of the National Institute.
Professor Walter R. Johnson (*Secretary*).

FOREIGN ACTING COMMISSIONERS.

America, United States of	Mr. Edward Riddle. Mr. N. S. Dodge, Secretary.
Austria	Chevalier de Burg. Charles Buschek.
Bavaria	Professor Dr. Schafhaütl.
Belgium	M. de Brouckère. Charles Coylits.
Brunswick	Professor Varentrapp.
Denmark	M. Regnar Westenholz.
Duchy of Nassau	Herr Assessor Odernheimer.
Egypt	Capt. Abdul Hamed.
France	M. Sallandrouze de Lamornaix.
Grand Duchy of Hesse	M. Rössler.
Greece	M. Ralli. M. Mavrojanni. M. Scaramanga.
Hamburgh	M. Noback. M. Piglheim. M. Meyer.
Hanover	M. Stahlschmidt.
Netherlands	M. Camp (*deceased*). G. Goossens.
Portugal	Don Antonio Valdez. Don Ribiero da Sa. M. Vanzeller.
Rome	Sr. Carlo Trebbi.
Russia	M. Gabriel Kamensky.
Sardinia	Chevalier Lencisa.
Saxony	Dr. W. Seyffarth, LL.D. Gustavus Dörstling.
Spain	Don Joaquin Alfonso. Don Ramon de la Sagra. Don Manuel de Ysasi. Don J. Villanueva. Don R. Echevarria.
Sweden & Norway	M. Charles Tottie.
Switzerland	Dr. Bolley. M. Eicholzer. Professor Colladon.
Tunis	Sig. Hamda Elmkadden. M. Santillana.
Turkey	M. Edward Zohrab.
Tuscany	Professor F. Corridi.
Wurtemburg	Dr. Steinbeis. M. Charles Brand. M. Schiedmayer.
Zollverein	Geheim Rath Von Viebahn. Baurath Stein. Assessor Vettin.

COLONIES IN WHICH COMMITTEES WERE FORMED.

Barbadoes.
Canada.
Cape of Good Hope.
Ceylon.
Guiana, British.
Malta.
New South Wales.
New Zealand.
Nova Scotia.
Trinidad.
Van Diemen's Land.

ACTING COMMISSIONERS AND ACTING AGENTS FOR COLONIES.

East Indies, Indian Archipelago, &c.—Dr. Royle.
Ceylon.—Mr. John Capper, 4 Sussex Place, Canonbury, Islington.
Malta.—Mr. Gingell, 66 Cornhill.
Cape of Good Hope and Natal.—Mr. Harrison Watson.
Canada.—Sir Randolph Routh, Mr. Peter McGill, Mr. J. H. Drew, Mr. T. Houghton.
Nova Scotia.—Mr. C. D. Archibald, 15 Portland Place.
Barbadoes.—Mr. Reade.
British Guiana (Demerara, &c.)—Mr. Ridgway, 42 Leicester Square.
Bahamas.—Mr. Daniell, 18 Wigmore Street, Cavendish Square.
Trinidad.—Messrs. Lightly and Simon, 123 Fenchurch Street.
South Australia.—Messrs. Hallett and Co.
Western Australia.—Mr. Barnard.
New Zealand.—Mr. Moore, 30 Arundel Street, Strand.
Van Diemen's Land.—Mr. McLachlan, 17 St. Helen's Place.

APPENDIX No. IX.

LIST of those PERSONS from whom PLANS were received at the PALACE of WESTMINSTER for the BUILDING proposed to be Erected in HYDE PARK.

✛ Reported by the Building Committee as "entitled to honourable and favourable mention, "on account of architectural merit, ingenious construction or disposition, or for graceful "arrangement of plan."

☒ Reported by the Committee as being "entitled to further higher honorary distinctions, "on account of their being designs of distinguished merit, showing very noble qualities of 'construction, disposition, and taste."

Acollas, Mons., Architecte, 33, Rue Lafayette, à Paris.
Aicken and Capes, Messrs., 1, Clarence-street, Islington.
Albon, W., Esq., 32, Abingdon-street, Westminster.
✛ Allen, C. B., Architect, 9, Great College-street, Westminster.
Anderson, F. C., Esq., 9, Holles-street, Cavendish-square.
✛ Αρχιτεκτων (W. Bardwell, 4, Great Queen-street, Westminster).
✛ Ashton, Henry, Esq., 50A Lower Brooke-street.
Austin, John S., Architect, Bedford.
Austin, William, Esq., High-street, East Dereham, Norfolk.
☒ ✛ Badger, C., Esq., Architect, 40, Rue Blanche, Paris.
✛ Baly, R., Esq. (4 plans), 14, Buckingham-street, Adelphi.
Beaumont, Alfred, Architect, 5, Warwick Chambers, Beak-street.
✛ Bell, Richard, Architect, Pope's Head Chambers, Cornhill.
Bell, W., Esq., Clift Cottage, Coronation-road, Bristol.
☒ ✛ Bellamy, Thomas, Esq., Architect, Charlotte-street, Bedford-square.
Benett, J. S., Esq., 21, Rutland-street, Hampstead-road.
☒ ✛ Bertram, J. H., M. Inst. C. E., Reading.
Black, John, Esq., 33, Ernest-street, Regent's Park.
Blank.
Blatchley, E., Esq., Jun., 362, Oxford-street.
☒ ✛ Botrel, Mons. Alphonse, Architecte, 121, Rue Poissonnière, Paris.
Boulnois, A. W., Esq., Bazaar, King-street, Baker-street.
Boyle, W., Esq., 5, Little George-street, Westminster.
✛ Brandon, R., Architect, 11, Beaufort-buildings, Strand.
Broad, R., Esq., Horseley Works, Tipton.
Broadbridge, B., Architect, 35, Ladbroke-square, Notting-hill.
✛ Brown, F., Esq., Francis-street, Torrington-square.
Brown, R., Esq., 41, Lord-street, Liverpool.
✛ Bunning, J. B., Esq., Guildhall.
Burk, H. P., Esq., 238, Blackfriars-road.
✛ Burn, George A., Architect, George-place, Hammersmith.
Crace, John G., Esq., 14, Wigmore-street.
C. E. G., Warwick.
C. T. G.
☒ ✛ Cailloux, Mons. J., 25, Marché St. Honoré, Paris.
Campbell, A. F., Esq., 104, Pall Mall, Reform Club.
✛ Case, Henry, Esq., 19, Hanover Villas, Kensington Park.
Catt, James, Esq., Blackheath Park.
✛ Charpentier, Mons. J., Architecte, 15, Rue Farochefoucalc, Paris.
Claringbull, J., Esq., 95, Herbert-street, New North-road.
☒ ✛ Cléemputte, Mons. Henri van, Laon, France.
✛ Cluysenaar, Mons. J. P., Architecte, Bruxèlles.
Colthurst, J., Esq., 36, Jermyn-street, St. James's.
Colson, John, Architect, Winchester.
✛ Conrad, Mons. J. W., Chief Engineer, La-Haye, Holland.
Coote, C. C., Esq., Clifton.
Corson, W. R., Architect, 3, Albion-place, Leeds.
✛ Courtney, H., Esq., 39, Alwyne-road, Canonbury-square, Islington.
Cowan, David, Esq., 9, Hungerford-street, Strand.
☒ ✛ Crémont, Mons., 10, Place des Vosges, Paris.
✛ Cruikshank, W., Esq., 24, Duke-street.
Damas de Culture, Mons. E., 20, Rue Mazayran, Paris.
Darley, G. J., Esq., C.E., 7, Kildare-street, Dublin.
☒ ✛ Delaage, Mons. A., 6, Place de l'Oratoire du Louvre, Paris.

Dennis, W., Esq., Church-street, Hackney.
✠ Downes, Charles, Esq., 29, Coleshill-street, Eaton-square.
Drake, Francis, Esq., 11, Calthorpe-street, Gray's Inn-road.
✠ Dreux, A. G. Le, Clermont, France.
Duesbury, Henry, Architect, Kensington Gore.
Duflocq, Mons., 96, Rue Rochechouart, Paris.
Dupuy, Mons., 9, Rue Duplessés, Versailles.
✠ Durand, Mons. A., Moulins, France.
Edwards, O. C., Esq., Gloucester.
E. I. C., Alnwick.
Eldudge, J., Esq., 16, Somerset-place, New Road, Commercial-road East.
Elliott, J., Architect, 28, Portland-terrace, Southampton.
☒ ✠ Elven, M. G. Tétar van, Architecte, Amsterdam.
Erskine, D., Esq., 58, Clerk-street, Edinburgh.
Everitt, W. J., Esq., 1, Garden-street, Stepney-green.
Faure, Mons. Théodore, 2, Little Argyle-street, Regent-street.
Félix, Mons. F. Desaint, and White, E. E., Architects, Ipswich.
✠ Fevre, Mons. Henri, Architecte, 41, Rue de Vaugirard, à Paris.
Finlay, F., Esq., 26, Duke-street, Westminster.
Folkard, Charles, Esq., C.E., 56, King-street, Whitehall.
Forbes, David Colin, Esq., Stirling.
Forrest, James, Esq., C.E., 25, Great George-street.
Freebody, W., Esq., 9, Duke-street, Westminster.
✠ Fripp, S. C., Architect, Bristol.
Fürges, L., Architecte, Crefeld.
Garrard, A., Esq., Surveyor.
✠ Gearing, Arthur, Esq., 2, Ranelagh-street, Leamington Spa.
Geggie, William, Esq., Knaresbro'.
Gibson, J., Esq., Great Western Railway, Paddington.
Gillingham, Robert, Esq., 31, Clarence-road, Kentish Town.
✠ Godebœuf, Mons., Architecte, 12, Place Breda, à Paris.
Gooch, C. W., Esq., 42, Connaught-terrace, Edgware-road.
Gould, John, Esq., Tottenham Park, Wiltshire.
Greene, Richard, Esq., F.S.A., Secretary to Lichfield Architectural Society.
Grubb, Edmund W., Esq., Newnham, Gloucestershire.
Grubb, Robert S., Esq., Newnham-on-Severn, Gloucestershire.
Guppy, T. B., Esq., Naples.
Haddan, J. C., Esq., 29, Bloomsbury-square.
Hammann, Herr Friederich, Hamburg.
Hannaford, Thomas Roberts, Architect, 21, Trigon-terrace, Kennington
Hansard, O., Architect, 2, Kensington-gardens-terrace, Hyde Park.
Hardy, Robert, Carpenter, 32, North Conduit-street, Bethnal-green.
✠ Harrison, John Thornhill, Esq., East Bolden, near Gateshead.
Harrison, J. P., Esq., 11, Chancery-lane.
Haw, Thomas, Esq., 27, Prospect-terrace, Globe-road, Mile End.
✠ Hayes, Thomas, Esq., 7, St. George's-terrace, Hyde Park.
Heilton, Samuel, Esq., 54, Redcross-street, City.
☒ ✠ Henard, Mons. J., 98, Rue St. Lazarre, Paris.
Hendrey, James, Esq., 4, Pancras-lane, Cheapside.
Hewitt, J., Esq., Oxford.
Hollands, W. S., Esq., 37, King William-street.
☒ ✠ Horeau, Mons. Hector, 70, Rue Richelieu, Paris.
Horton, George, Esq., 6, Green-street, Grosvenor-square.
Howell, Albert P., Architect, 2, Holywell-street, Westminster.
☒ ✠ Huchon, Mons. C., 28, Rue Meslay, Paris.
Hurwitz, Benjamin, Esq., 1, Brydges-street, Strand.
✠ Imray, John, Esq., Engineer, 12, Howley-street, Lambeth.
Jackson, A., Esq., Barkhart House, Orpington, Kent. *
✠ Jaquet, Mons. Ch. Schœch, 238, Rue de la Vertasse, Geneva.
✠ Jaulle, Mons., 81, Rue Française, à Calais.
Jayne, Charles, Architect, 7, Chancery-lane.
Jizkowski, Adam, Architect to the Government, Warsaw.
Jopling, Joseph, Esq., Felton Villa, Finchley-road.
✠ Kalme, Louis, Brunswick.
Kaye, H. J., Esq., 63, Sloane-street, Knightsbridge.
Kennedy, G. P., and Kennedy, R., Esqrs., Sussex Chambers, Duke-street, St. James's.
✠ Knowles, J. T., Esq., 1, Raymond-buildings, Gray's Inn.
Krahi, Herr Friederich, Brunswick.

Lady (A) with great diffidence submits this plan.
✠ Laves, M., Architect to the King of Hanover, Hanover.
Leonard, S. W., Assistant-Curator, Micrological Society, 11, Upper Stamford-street, Waterloo-road.
✠ Lewis, W. B., Esq., Rainbow-hill, Worcester.
Lobb, R., Esq., 8, Goulden-terrace, Barnsbury-road, Islington.
Locke Brothers, New Peckham.
Lockwood, Henry, F.S.A., and Mawson, William, Architects, Bradford.
Lote, Henry, Esq., 51, Brompton-row.
Lovely, R., Esq., C.E., 1, Victoria-terrace, Queen's-road, Nottingham.
Mackenzie, George, Esq., 3, Claremont-row, Barnsbury-road, Islington.
Magni and Thummeloup, Messrs., 26, Boulevard du Temple, Paris.
Mallet, R., Esq., Victoria Foundry, Dublin.
Mansell and Elliott, Architects, Halkin-street West, Belgrave-square.
Marchant, R. M., Esq., 18, Great George-street.
Margary, P. J., Esq., Dawlish, Devonshire.
Marshall, W. P., Esq., Temple-buildings, New-street, Birmingham.
Mickle, D., Esq., 37, Queen-square, Bloomsbury.
Mitchell, Joseph, Architect, St. James'-street, Sheffield.
Montheath, J., Esq., 10, Stanley-street, Paddington.
Moon, James, Architect, 1, Millman-street, Bedford-row
Moorsom, Captain W. S., 17½, Great George-street.
Morgan, G., Architect, 6, Charles-street, Westminster.
Muller, J. H., Gaes, Holland.
✠ Nelson, Charles C., Esq., 30, Hyde Park-gardens, London.
✠ Nepveu, Mons. C. Frédéric, 13, Place d'Armes, Versailles.
Nethersole, W., Esq., C.E., 73, Oakley-square, St. Pancras.
Newberry, I. W., Esq., Hook Norton, Chipping Norton, Oxon.
Newman, Francis B., Architect, 14, Heathcote-street, Mecklenburgh-square.
Newton, C. H., Esq., 92, Camden-road Villas, Regent's Park.
✠ Paliard, Mons., 23, Rue d'Enghein, Paris.
Paraire, E., Architect, 16, Woodstock-street, Bond-street.
☒ ✠ Patre, Mons. Henri le, 47, Grand Rue de la Chapelle, St. Denis, Paris.
Peacock, Thomas, Esq., High-street, Kensington.
Pemberton, J. D., Esq., Royal Agricultural College, Cirencester.
Perry, G., Architect, 42, Newington-place, Kennington.
☒ ✠ Pétiaux, Mons. Casimir, Paris.
✠ Pusillion, Mons., Architecte, Thoune Suisse, Faubourg St. Germain, Paris.
Q.
Radley, William, Chemical Engineer, Regent-street, Lambeth.
Railton, W., Esq., 12, Regent-street.
Rankin, W., Esq., Stirling.
Reed, W., Esq., Cannon Cottage Hill, Southampton.
Reid and Butcher, Messrs., Architects and Surveyors, 38, Red Lion square, London.
Reilly, Stanley, Architect, 3, Upper Kennington-green, Kennington.
Rennie, George Banks, Esq., Whitehall-place.
Ricardo, Harry Ralph, Esq., Beaulieu Lodge, Norwood, Surrey.
Riddle, W., Esq., East Temple Chambers, Whitefriars, Fleet-street.
✠ Ridley, H. S., Architect, 31, Vincent-square, Westminster.
✠ Roberts, J. B., Architect, Sleaford, Lincolnshire.
Robertson, Andrew John, Esq., C.E., Newcastle-upon-Tyne.
Robertson, William, Esq., 12, Gordon-street, City-road.
✠ Rosengarten, A., Architect, Hamburg.
Ross, Alex. M., 3, Parliament-street, Westminster.
Rough Draught, 42, Stamford-street.
✠ Rouse, Henry, Esq.
Russell, H. H., Esq., C.E., M.R.S.A.
✠ Russell, W., Esq., 3, Frederick-street, Hampstead-road.
Ryde, E., Esq., 14, Upper Belgrave-place, Eaton-square.
Sanderson, George, Esq., 136, Solly-street, Sheffield.
Sanderson, Charles, Esq., Friar-street, Reading.
Sandeman, Robert, Architect, Greenside, Edinburgh.
✠ Savage, H., Esq., 22, Beaumont-street, Marylebone.
Scurry, W., Esq., 7, Denbigh-place, Pimlico.
Sed quis custodiet Custodes.
✠ Seddon, J. P., Esq., Gray's Inn-road.
Sewell, J. R., Esq., Carrington, near Nottingham.
✠ Slater, Mons. A., Architecte, Elève de Mons. l'Architecte Cluysenaar.

Smallwood, E., Architect, 86, Park-street, Camden Town.
✢ Smith, F. Smalman, Esq., 18, Brunswick-street, Barnsbury-road, Islington.
✢ Smith, C. H.. Esq., 29, Clipstone-street.
Smith, J. M., Esq., 1, Chapel-place, Duke-street, Westminster.
Smith, W. J., Esq., 18, Bond-street, Commercial-road, Lambeth.
Smith, G. Campbell, Esq., Banff.
Soyer and Warrener, Messrs., Reform Club.
☒ ✢ Sprenger, Paul, Esq., Architect to the Government, Vienna.
Sternitz, Francis, Esq., 10, Berner-street, Commercial-road East.
Stewart, W., Esq., Seacombe, Cheshire.
Stutely, M. J., Architect, 4, Doughty-street, Mecklenburgh-square.
Suckling, H., Esq., 1, Conduit-street, Regent-street.
Tate, George, Esq., Bawtry, Yorkshire.
Taylor, J., Architect, 22, Parliament-street.
Taylor, T., Architect, 33, Clarendon-street, Oakley-square.
Taunton, J. H., Esq., 2, Gordon-place, Kensington.
Thomas, D. W., Esq., 20, St. Petersburg-place, Bayswater.
Thompson, R. M., Esq., 46, Leicester-square.
Thompson, P., Architect, 1, Osnaburgh-place, New-road.
Thompson, F., Esq., 15, Trafalgar-square, Peckham.
Thrupp, James, Architect, 2, Park-place, Bath.
✢ Todd, H. W., and Allingham, W., 91, Newman-street, Oxford-street.
☒ ✢ Turner, Richard, and Turner, Thomas, Hammersmith Works, Dublin.
Turner, Henry, Esq., Low Heaton, Haugh, Newcastle-on-Tyne.
✢ Tyerman, F., Jun., Architect, 14, Parliament-street.
☒ ✢ Véron, Mons., 2, Quai des Armes, Paris.
Vulcan.
Walker, John, Esq., Crooked-lane Chambers, King William-street.
✢ Wallis, George, Artist, and Sumners, Henry, Architect, 14, College-place, Camden Town.
Warren, J. N., Esq., C.E., 18, Adam-street, Adelphi.
✢ Watson, J. E., Esq., 74, Grey-street, Newcastle-on-Tyne.
Whitcombe, Henry, Esq., Slough.
Wightwick, George, Architect, 3, Athenæum-terrace, Plymouth.
Wilkie, George, Esq., C.E., 8, Powell-street West, King's-square.
Wilkinson, George, Esq., Horsham.
Wilkinson, S. J., 7, Jeffery's-square, St. Mary Axe.
Williams, James, Esq., 18, Westgate-buildings, Bath.
Wilson, George, Esq., Knaresbro', Yorkshire.
Wilson, Ralph, Architect, 16, Bridge-street, Westminster.
Wilson, James G., Esq., 18, Great George-street, Westminster.
Winder, Richard, Esq., Fenchurch-street.
Withall, R. A., Architect, 80, Cheapside.
✢ Wontner, W. H., Architect. St. Ann's-road, North Brixton.
Wood, Frederick, Esq.. 6, Franklin-road, Queen-road, East Chelsea.
✢ Worthington, Thomas, Architect, 54, King-street, Manchester.
Wylson, James, Architect, 112, Fyfe-place, Glasgow.

Of these Designs, 38 were contributed by foreigners (France, 27; Belgium, 2; Holland, 3; Hanover, 1; Naples, 1; Switzerland, 2; Rhein Prussia, 1; Hamburgh, 1); 128 by residents in London and its environs; 51 by residents in provincial towns of England; 6 by residents in Scotland; 3 by residents in Ireland; and 7 were anonymous.

The Committee concluded by calling attention to the Designs, accompanied by Models, of Monsieur Hector Horeau, Architect, of Paris, and of Messrs. Turner, of Dublin, as evincing most daring and ingenious disposition and construction.

APPENDIX No. X.

RETURN showing the TEMPERATURE OF THE BUILDING for each day during the Time of the EXHIBITION.

The following Table is compiled from a Register kept by the men of the Royal Sappers and Miners charged with watching the ventilation. The temperature inside the Building was determined from the mean of the readings of fourteen thermometers, observed daily at 9 and 12 A.M., 3 and 6 P.M., during the whole period the Building was open to the public, except from the 9th September to the close, when the last reading was taken at 5 P.M. The thermometers were placed without much regard to shade or sunlight, and in this respect varied much according to the time of the day, the season, and consequent position of the sun. The temperature outside is determined from the mean of three thermometers read at the same hours as those inside. The Greenwich mean temperature is also given, which is, of course, lower than that observed outside the Building, as one of the readings at Greenwich is made at 9 o'clock at night, and as care is taken to shade the thermometers from the sun in the day.

No register was kept on Sundays, nor on any day before the 19th May.

The highest temperature recorded was 90° on the 27th June.

DATE.	Thermometers in the Building.			Mean of 12 Readings Outside	Interior more than Exterior.	Interior less than Exterior.	Greenwich Mean.	Rain registered at Greenwich.
	Highest.	Lowest.	Mean of 56 Readings.					
	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Inches.
May 19	75	52	60	Not taken	–	–	50	0·03
" 20	70	50	60	,,	–	–	50	0·00
" 21	70	53	62	,,	–	–	54	0·00
" 22	72	58	67	,,	–	–	60	0·00
" 23	70	55	62	,,	–	–	52	0·00
" 24	75	51	64	,,	–	–	54	0·00
" 26	66	53	60	,,	–	–	51	0·01
" 27	70	49	61	60	1	–	51	0·03
" 28	75	57	67	70	–	3	57	0·00
" 29	83	57	70	73	–	3	60	0·00
" 30	76	60	69	72	–	3	58	0·00
" 31	70	57	64	66	–	2	53	0·00
June 2	79	55	68	70	–	2	59	0·00
" 3	77	61	68	70	–	2	61	0·00
" 4	72	47	61	58	3	–	48	0·08
" 5	67	51	59	57	2	–	51	0·09
" 6	72	57	64	64	–	–	57	0·00
" 7	67	57	62	62	–	–	57	0·00
" 9	65	55	58	58	–	–	55	0·05
" 10	63	51	56	52	4	–	50	0·35
" 11	72	56	64	60	4	–	54	0·12
" 12	66	55	61	59	2		55	0·20
" 13	71	61	65	65	–	–	59	0·04
" 14	68	59	64	63	1	–	57	0·01
" 16	74	60	67	65	2	–	59	0·24
" 17	75	55	65	63	2	–	56	0·00
" 18	69	57	64	61	3	–	54	0·02
" 19	83	64	73	72	1	–	65	0·00
" 20	83	64	74	72	2	–	65	0·00
" 21	85	66	78	78	–		68	0·00
" 23	73	57	65	61	4	–	54	0·00
" 24	76	56	67	66	1	–	58	0·00
" 25	82	64	73	74	–	1	63	0·00
" 26	87	64	77	77	–	–	67	0·00
" 27	90	63	81	83	–	2	70	0·00
" 28	87	68	78	79	–	1	67	0·00
" 30	86	65	77	78	–	1	65	0·00
July 1	76	64	69	69	–	–	66	0·07
" 2	85	67	77	76	1	–	69	0·69
" 3	74	54	64	65	–	1	58	0·00
" 4	70	55	64	68	–	4	57	0·00
" 5	77	53	65	67	–	2	60	0·00
" 7	77	60	68	70	–	2	63	0·00
July 8	75	61	66	67	–	1	61	0·28
" 9	74	57	64	65	–	1	57	0·03
" 10	71	58	65	61	4	–	55	0·35
" 11	74	55	64	64	–	–	56	0·00
" 12	77	64	71	71	–		66	0·00
" 14	76	65	69	68	1	–	62	0·06
" 15	75	60	68	66	2	–	59	0 01
" 16	76	57	66	66	–	–	56	0·00
" 17	74	56	63	62	1	–	55	0·29
" 18	74	57	66	67	–	1	57	0·01
" 19	69	55	63	61	2	–	56	0·22
" 21	77	61	70	70	–	–	62	0·00
" 22	80	60	69	67	2	–	62	0·00
" 23	72	59	66	62	4	–	60	1·44
" 24	73	58	63	57	6	–	56	0·54
" 25	74	57	64	63	1	–	60	0·00
" 26	72	56	63	62	1	–	59	0·07
" 28	73	58	67	67	–	–	61	0·03
" 29	82	64	71	70	1	–	64	0·00
" 30	75	63	69	69	–	–	63	0·22
" 31	78	58	67	66	1	–	60	0·00
Aug. 1	89	65	71	72	–	1	68	0·01
" 2	80	64	71	74	–	3	66	0·00
" 4	89	64	75	75	–	–	68	0·00
" 5	85	62	73	72	1°	–	62	0·00
" 6	74	58	65	66	–	1	58	0·00
" 7	82	60	69	72	–	3	65	0·00
" 8	86	65	75	75	–	–	68	0·00
" 9	70	58	64	66	–	2	61	0·00
" 11	86	65	74	74	–	–	60	0·00
" 12	86	65	76	77	–	1	69	0·00
" 13	87	69	76	77	–	1	70	0·01
" 14	82	65	73	71	2	–	64	0·00
" 15	79	65	71	70	1	–	66	0·00
" 16	73	62	68	66	2	–	64	0·00
" 18	75	61	67	67	–	–	58	0·00
" 19	76	52	65	62	3	–	59	0·00
" 20	81	58	72	69	3	–	65	0·00
" 21	84	63	74	73	1	–	68	0·00
" 22	83	64	77	75	2	–	68	0·00
" 23	75	62	67	68	1	–	64	0·00
" 25	77	60	67	65	2	–	60	0·00
" 26	67	57	63	62	1	–	57	0·09
" 27	79	60	65	65	–	–	61	0·00

Return showing the Temperature of the Building during the Time of the Exhibition—*continued.*

Date.	Thermometers in the Building. Highest.	Thermometers in the Building. Lowest.	Thermometers in the Building. Mean of 56 Readings	Mean of 12 Readings Outside.	Interior more than Exterior.	Interior less than Exterior.	Greenwich Mean.	Rain registered at Greenwich
	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Inches.
Aug. 28	71	58	62	61	1	-	54	0·30
" 29	68	53	62	57	5	-	49	0·15
" 30	64	52	59	58	1	-	52	0·00
Sept. 1	80	51	68	69	-	1	65	0·00
" 2	78	62	71	70	1	-	65	0·12
" 3	75	65	71	68	3	-	64	0·01
" 4	75	62	68	66	2	-	61	0·01
" 5	70	56	63	61	2	-	58	0·00
" 6	68	57	62	59	3	-	57	0·00
" 8	79	50	62	57	5	-	58	0·00
" 9	72	54	61	58	3	-	57	0·00
" 10	70	50	60	59	1	-	58	0·00
" 11	72	46	64	58	6	-	57	0·00
" 12	74	50	67	62	5	-	56	0·00
" 13	69	50	61	62	-	1	58	0·00
" 15	72	52	61	61	-	-	57	0 00
" 16	72	56	62	63	-	1	58	0·00
" 17	73	57	63	62	1	-	58	0·00
" 18	73	56	62	62	-	-	57	0·00
" 19	76	53	61	60	1	-	58	0·00

Date.	Thermometers in the Building. Highest.	Thermometers in the Building. Lowest.	Thermometers in the Building. Mean of 56 Readings.	Mean of 12 Readings Outside.	Interior more than Exterior.	Interior less than Exterior.	Greenwich Mean.	Rain registered at Greenwich.
	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr	Inches.
Sept. 20	73	54	61	60	1	-	56	0·00
" 22	75	54	64	61	3	-	58	0·00
" 23	74	50	63	62	1	-	59	0·00
" 24	71	57	62	61	1	-	59	0·09
" 25	68	57	62	61	1	-	56	0·01
" 26	60	45	57	50	7	-	47	0·00
" 27	66	49	53	52	1	-	50	0·05
" 29	65	46	54	53	1	-	51	0·00
" 30	69	51	60	58	2	-	53	0·14
Oct. 1	65	51	57	57	-	-	55	0·17
" 2	68	50	59	55	4	-	51	0·20
" 3	67	50	67	59	8	-	56	0·05
" 4	70	57	63	59	4	-	57	0·05
" 6	73	51	64	55	9	-	54	0·25
" 7	73	50	61	57	4	-	54	0·05
" 8	74	50	61	55	6	-	51	0·00
" 9	68	46	59	54	5	-	51	0·12
" 10	74	46	64	64	-	-	61	0·00
" 11	74	54	64	61	3	-	59	0·00
Total	-	-	-	-	179	47		
Deduct Interior less than Exterior	-	-	-	-	47			
Total Excess of Temperature of Building over Exterior	-	-	-	-	132			

Mean Excess per day $\frac{132}{119}$, or rather more than 1°.

The circulation of air which the ventilating Louvres were intended to produce was much interrupted by the Goods, and also by the necessity which occurred of partitioning off the Machinery Rooms and some other parts of the north side of the Building. The want of this circulation was much felt on the days when there was little wind and a strong sun; it was considered desirable, therefore, to remove about 90 Sashes, each about 20 feet high by 8 feet wide, in different parts of the Building, the openings being closed when necessary by canvass blinds. The actual temperature of the Building does not seem to have been much increased by large numbers of Visitors.

On 79 days on which the Visitors were more than 40,000, the mean excess of the interior over the exterior was 1·11 degrees; on 40 days that the Visitors were less than 40,000, it was ·85 degrees.

H. C. O.

APPENDIX No. XI.

STATEMENT of the MATERIALS supplied for the Construction of the Building.

CAST IRON.

	No. of Pieces.	Weight.			
		Tons.	cwt.	qrs.	lbs.
Foundation pieces	1,107	164	5	3	11
Columns	2,494	870	18	2	19
Connecting pieces	2,500	200	3	2	23
Girders	2,357	1,381	14	1	22
Sundries for Binders for Gallery-floor and Lead-flat	3,549	26	14	2	21
Columns, Girders, &c., for Staircases	2,326	95	2	3	7
Railing for Staircases					
Standards, Panels, and Shield-plates for Gallery-railing	8,138	71	1	3	7
Bands, Caps, and Bases for Columns	9,945	70	10	2	-
Sundries for Trusses	3,852	47	14	-	14
,, Paxton's Gutters	16,093	34	-	3	19
,, fixing Sashes and Wood Panels	6,127	9	7	-	7
,, Transept, including Purlins	1,596	7	3	-	11
,, ,, Fronts	495	7	9	1	15
Filling Frames and Arch pieces	5,396	227	2	2	10
Ornaments for Cornices	11,650	43	15	1	26
Galvanized Centres for Louvres	41,647	4	15	3	5
Moving apparatus for Louvres	7,197	4	2	-	12
Tank-plates	79	13	7	1	4
Sundries for Urinals	21	1	-	-	4
,, lean to Roof	27	1	16	3	27
Sundries to replace breakage	43	9	8	2	20
Railing-posts	884	63	10	3	1
Exterior Railing	3,497	188	17	3	16
Caps, &c., for Flag-staffs	312		16	1	11
Hinges for entrance and exit Doors	219	1	1	1	15
Sundries for Gas-stoves	38		4	2	10
,, diagonal bracing	1,328	9	18	1	3
Pipes, branches for drains	3,033	198	2	1	11
	21	1	11	2	7
,, ,, Cock-boxes, &c., for Water supply	447	24	15	3	19
	6		3	1	22
Brass for Hinges	131		2	-	-
,, Louvre apparatus	106			2	21
Total Cast Iron	136,665	3,784	1	1	-

WROUGHT IRON.

	No. of Pieces.	Tons.	cwt.	qrs.	lbs.
Bolts and Nuts for Columns	26,231	21	3	2	25
Sundry Bar and Angle Irons for Trusses	14,146	298	5	-	22
,, Bolts and Rivets for ditto	105,594	20	2	2	-
,, Truss-bars for Paxton Gutters	3,026	56	3	2	21
,, Bolts, Nuts, and Plates for ditto	14,699	4	2	3	-
Truss-rods for Binders	8,710	53	1	2	7
Bolts, &c., for ditto	9,484	4	14	3	14
Bolts, &c., for fixing Sashes, Wood-panels, &c., &c.	55,831	13	12	2	-
Bolts and Straps for Transept Roof	3,819	2	9	3	-
Bolts, &c., for Transept Fronts	2,917	-	16	2	7
Rails for Post Railing	269	12	6	2	22
Sundries for Flag-staff Standards	3,639	-	19	3	-
,, Gallery Railing	7,599	1	7	-	14
,, Water supply, &c.	282	-	1	2	21
Galvanized Louvre Blades	12,160	49	11	2	14
,, Straps and Rivets for ditto	61,119	1	11	3	21
Sundry Chameroy's Pipes	811	34	15	3	-
Sundries for Louvre-moving apparatus	11,945	20	8	3	21
Hinges for entrance and exit Doors	332	-	1	-	10
Diagonal bracing	11,344	51	17	3	21
Sundries for Stairs	7,374	1	6	-	21
,, Tanks	3,105	-	6	1	1
Sundry Scrapers and Mat-frames	18	3	14	2	-
,, Brass-spikes, &c., for external Railing	27,234	31	12	1	7
Bars and angle Iron for lean to roof of Boiler-house	6,706	1	8	2	14
Bolts, Nuts, Rivets, and Washers for ditto		-	1	3	14
Galvanized Plates for ditto		1	11	-	21
Bundles of Hoop-iron for Gallery-floor	1,285	12	2	2	-
Bars of $\frac{5}{8}$, $\frac{1}{2}$, and $\frac{3}{8}$ round and square Iron for sundries	736	2	9	2	-
Total Wrought Iron	400,417	702	3	2	10

Statement of the Materials supplied for the Construction of the Building—*continued.*

SUNDRIES.

627 Yards of 5-inch Gas Mains, or say 215 Pipes.
1,226 Yards of 4-inch Gas Mains, or say 420 Pipes.
4 Six-inch Sluice-cocks.
17 Four-inch Sluice-cocks.
16 Three-inch Sluice-cocks.
3 Six-inch double-faced ditto.
2 Sets of Keys and Tools for Water-cocks.

TIMBER SUPPLIED.

		No.	Lineal feet.	In.
Wrought.	Ridge pieces, No. 1	3,953	83,120	-
	Small skylight Bars, No. 2	198,493	814,858	4
	Strong ,, No. 3	26,102	107,126	10
	Sash Bars, No. 4	13,494	194,968	7
	Side-light Stiles, No. 5	2,680	38,727	7
	Ditto, with corners cut off, No. 6	849	12,773	-
	Bottom Rails, No. 7	1,553	11,726	8½
	Top Rails, No. 8	1,735	13,103	2½
	Transept Bars	16,113	69,830	6
		264,972		

		Feet cube.
Rou	Timber in Transept Roof	7,000
	,, Ends	2,500
	,, Fronts	1,200
	Ground-floor	200,634
	Gallery-floor	85,000
	Lead-flat	5,500
	Plinth-framing and Louvres	8,000
	Face-work	29,800
	Gutters over Trusses and Paxton Gutters	50,000
	Wood Girders	3,000
	Offices, Refreshment-court, and Machinery partition	18,000
	Stairs	2,000
		412,634

GLASS.

246,210 Panes, 49 inches by 10 inches.
47,445 Ditto other dimensions.

293,655 Panes.

RETURN showing the Number of MEN Paid each Week in Hyde Park, in the Erection of the Exhibition Building.

Week ending—	No. of Men.	Week ending—	No. of Men.	Week ending—	No. of Men.
1850	—	1850	—	1851	—
3 August	30	6 December	2,128	4 April	2,128
9 ,,	57	13 ,,	2,128	11 ,,	2,163
16 ,,	60	20 ,,	2,074	18 ,,	2,205
23 ,,	43	27 ,,	2,035	25 ,,	2,147
30 ,,	50	1851		2 May	2,149
6 September	56	3 January	2,145	9 ,,	1,097
13 ,,	86	10 ,,	2,098	16 ,,	541
20 ,,	128	17 ,,	1,758	23 ,,	499
27 ,,	293	24 ,,	1,653	30 ,,	450
4 October	467	31 ,,	1,417	6 June	442
11 ,,	590	7 February	1,333	13 ,,	381
18 ,,	808	14 ,,	1,210	20 ,,	369
25 ,,	841	21 ,,	1.244	27 ,,	216
1 November	1,538	28 ,,	1,353	4 July	175
8 ,,	1,924	7 March	1,613	11 ,,	152
15 ,,	1,936	14 ,,	1,974	18 ,,	139
22 ,,	1,935	21 ,,	2,030	25 ,,	127
29 ,,	2,129	28 ,,	2,071	1 August	103

FOX, HENDERSON, & CO.

Some Particulars abstracted from the Accounts submitted to the Royal Commission by Messrs. Fox and Henderson, showing the Expenditure under the various Heads.

	£.	s.	d.
Sundry Wages, &c., paid at Park	58,238	11	11
Salaries and Expenses not included in Park Wages	950	0	0
Expended at London Works, Birmingham, principally for Cast and Wrought Iron Work	22,103	10	5
Ditto at Renfrew	990	10	5
Cast Iron	21,399	4	9
Wrought Iron	2,050	15	10
Iron and Ironmongery	1,962	12	11
Timber	31,550	13	10
Sash Bars	3,494	9	1
Doors	452	7	4
Glass	13,174	9	9
Brickwork	1,639	18	7
Masonry	156	6	4
York Curb	192	4	1
Granite	658	6	8
Paint, Oil, Brushes, Kettles, Stain, Varnish, &c.	5,049	15	10
Covering Lead-flat	866	15	8
Zinc Moulding, Lamps, &c.	309	2	6
Gas-fittings	1,323	6	9
Hire of Horses and Cartage	1,670	7	6
Saw Mills and Expenses connected therewith	673	0	8
Coals and Coke	111	19	0
Calico	1,631	2	4
Netting	247	3	2
Ladders	121	16	10
Hire of Cloths	341	19	0
Rope	399	1	3
Lime	265	18	3
Gas	48	11	9
Stationery	170	6	10
Drawings and Lithographic Plans	824	7	5
Watching	185	8	0
Miscellaneous	2,776	9	0
	176,030	13	8

APPENDIX No. XII.

RETURN showing the Amount of SPACE ORIGINALLY ALLOTTED to each Country, and the SPACE which each Country ACTUALLY OCCUPIED.

COUNTRY.	Gross Horizontal Space originally allotted, in Square Feet.	Space allotted, deducting half estimated for Passages, in Square Feet.	Space actually Occupied.			
			Net Horizontal Space, occupied by Goods, in Square Feet.	Space occupied by Passages, in Square Feet. §	Total Space, in Square Feet.	Total Number of Bays, 24 Feet Square.
America, United States of - - -	80,000	40,000	12,864	31,488	44,352	77
Austria - - - - - -	30,000	15,000	13,946	34,438	48,384	84
Belgium - - - - - -	30,000	15,000	12,631	24,809	37,440	65
China - - - - - -	2,000	1,000	2,375	2,809	5,184	9
Denmark - - - - - -	5,000	2,500	268	884	1,152	2
Egypt - - - - - -	3,000	1,500	460	1,844	2,304	4
France - - - - - -	100,000	50,000	44,993	74,815	119,808	208
Zollverein—						
Prussia and States not mentioned below	60,000	30,000	23,030	54,154	77,184	134
Bavaria - - - - - -						
Saxony - - - - - -						
Wurtemburg - - - - -						
Frankfort-on-Maine - - - -						
Grand Duchy of Hesse - - -						
Luxemburg - - - - -						
Nassau - - - - - -						
Greece - - - - - -	2,000	1,000	359	217	576	1
Hamburg and States of North Germany -	10,000	5,000	1,625	1,255	2,880	5
Netherlands - - - - - -	10,000	5,000	1,133	3,475	4,608	8
Persia - - - - - -	1,000	500	186	390	576	1
Portugal - - - - - -	2,000	1,000	927	2,529	3,456	6
Rome - - - - - -	2,000	1,000	277	3,179	3,456	6
Russia - - - - - -	10,000	5,000	5,490	8,334	13,824	24
Sardinia - - - - - -	3,000	1,500	1,070	2,962	4,032	7
Spain - - - - - -	5,000	2,500	1,055	2,977	4,032	7
Sweden and Norway - - - -	5,000	2,500	612	1,116	1,728	3
Switzerland - - - - -	5,000	2,500	3,405	8,691	12,096	21
Tunis - - - - - -	1,000	500	1,496	3,110	4,608	8
Turkey - - - - - -	10,000	5,000	2,063	4,849	6,912	12
Tuscany - - - - - -	5,000	2,500	1,208	3,400	4,608	8
States of South America - - -	9,800	4,900	180	396	576	1
Arabia * - - - - - -	1,000	500	-	-	-	-
Morocco * - - - - - -	1,000	500	-	-	-	-
Naples * - - - - - -	5,000	2,500	-	-	-	-
United Kingdom of Great Britain and Ireland	292,950	146,475	189,275	314,149	503,424	874
East Indies—						
India - - - - - -	60,000	30,000	11,604	12,588	24,192	42
Ceylon - - - - - -	3,000	1,500				
Labuan - - - - - -	500	250				
North American Colonies—						
Canada - - - - - -	8,000	4,000	3,886	6,482	10,368	16
New Brunswick - - - - -	1,500	750				
Newfoundland - - - - -	1,000	500				
Nova Scotia and Cape Breton - -	2,000	1,000				
Hudson's Bay Company's Territories *	2,000	1,000				
Prince Edward's Island* - -	500	250				
Australian Colonies—						
New South Wales - - - -	4,000	2,000	835	1,469	2,304	4
South Australia - - - - -	700	350				
Van Diemen's Island - - - -	1,200	600				
West Australia - - - - -	700	350				
New Zealand - - - - -	1,000	500				
Falkland Islands - - - -	50	25				
Carried forward - -	776,900	388,450	337,255	606,809	944,064	1,639

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* Those countries marked with an asterisk did not exhibit.

§ Including the portion railed off for the protection of the goods, which probably amounted to about a tenth part of the whole space occupied by the passages.

Return showing the Amount of Space Originally Allotted to each Country, and the Space which each Country Actually Occupied—*continued.*

Country.	Gross Horizontal Space originally allotted, in Square Feet.	Space allotted, deducting half estimated for Passages, in Square Feet.	Space actually Occupied.			
			Net Horizontal Space occupied by Goods, in Square Feet.	Space occupied by Passages, in Square Feet.§	Total Space, in Square Feet.	Total Number of Bays, 24 Feet Square.
Brought forward - -	776,900	388,450	337,255	606,809	944,064	1,639
West India Colonies—						
Antigua - - - - -	750	375	742	1,562	2,304	4
Bahamas - - - - -	200	100				
Barbadoes - - - - -	1,500	750				
British Guiana - - - - -	2,000	1,000				
Grenada - - - - -	500	250				
Jamaica - - - - -	3,000	1,500				
Montserrat - - - - -	100	50				
St. Kitt's - - - - -	500	250				
St. Vincent - - - - -	500	250				
Trinidad - - - - -	1,500	750				
Dominica * - - - - -	250	125				
Nevis * - - - - -	200	100				
St. Lucia * - - - - -	500	250				
Tobago * - - - - -	200	100				
Tortola and Virgin Islands * - -	100	50				
Bermudas - - - - -	100	50				
Mediterranean Colonies—						
Gibraltar - - - - -	200	100	314	262	576	1
Ionian Islands - - - - -	2,000	1,000				
Malta - - - - -	2,000	1,000				
South and West Africa, Mauritius, and St. Helena—						
Cape of Good Hope and Natal -	1,500	750	403	749	1,153	2
Mauritius - - - - -	1,500	750				
St. Helena - - - - -	100	50				
Sierra Leone * - - - - -	300	150				
Cape Coast Castle and Dependencies *	200	100				
Gambia * - - - - -	200	100				
Hong Kong * - - - - -	1,000	500	-	-	-	-
Total - -	797,800	398,000	338,714	609,382	948,096	1,646
ABSTRACT.						
Total of Foreign States - - -	397,800	198,900	131,655	272,121	403,776	701
United Kingdom and Dependencies -	400,000	200,000	207,059	337,261	544,320	945†
Eastern Refreshment Court—						
Refreshments - - - - -	-	-	-	-	12,096	21
Open Courts - - - - -		-	-	-	4,608	8
Retiring Rooms - - - - -	-	-	-	-	2,304	4
Centre Refreshment Court—						
Refreshments - - - - -	-	-	-	-	10,944	19
Exhibitors' Dining Rooms - -	-	-	-	-	4,608	8
Retiring Rooms - - - - -	-	-	-	-	2,304	4
Western Refreshment Court—						
Refreshments - - - - -	-	-	-	-	4,032	7
Open Court - - - - -	-	-	-	-	5,760	10
Retiring Rooms - - - - -	-	-	-	-	2,304	4
Contractors' Workshop - - -	-	-	-	-	5,184	9
Entrances at South, East, and West -	-	-	-	-	10,368	18
Offices - - - - -	-	-	-	-	11,520	20
Lecture Rooms - - - - -	-	-	-	-	2,304	4
Fixed Seats for Visitors - -	-	-	-	-	3,456	6
Unoccupied - - - - -	-	-	-	-	3,456	6
Total - -	-	-	-	-	1,033,344‡	1,794

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* Those countries marked with an asterisk did not exhibit.

† Including transept, 42 bays.

‡ In addition to the above, a space of 30,712 square feet was inclosed outside the Building (at east and west ends), and applied to the purposes of the Exhibition.

§ Including the portion railed off for the protection of the goods, which probably amounted to about a tenth part of the whole space occupied by the passages.

Average Amount of Space occupied by each Exhibitor in each of the Thirty Classes.

Class.	Horizontal Space in Square Feet.	Vertical Space in Square Feet.	Class.	Horizontal Space in Square Feet.	Vertical Space in Square Feet.
I.	13	21	XVIII.	26	96
II.	8	10	XIX.	15	228
III.	10	11	XX.	16	23
IV.	11	14	XXI.	8	13
V.	65	49	XXII.	23	38
VI.	95	78	XXIII.	28	24
VII.	26	34	XXIV.	33	104
VIII.	15	30	XXV.	77	63
IX.	91	38	XXVI.	37	101
X.	16	22	XXVII.	27	43
XI.	23	70	XXVIII.	21	26
XII.	20	91	XXIX.	16	19
XIII.	32	77	XXX.	16	27
XIV.	23	76			
XV.	37	74	Average of 30 Classes taken together - -	24	47
XVI.	13	31			
XVII.	13	26			

R. G. Wylde.

APPENDIX No. XIII.

RECEIPT OF BRITISH GOODS.

RETURN showing the NUMBER of PACKAGES belonging to the 30 CLASSES of the UNITED KINGDOM, admitted during each WEEK of the PERIOD of the RECEIPT of GOODS.

CLASS - - -	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTAL.
1st Week, Feb. 13 to 15	4	1	2	-	39	-	-	5	1	-	-	-	1	-	-	-	-	-	1	1	2	1	-	-	-	-	8	-	1	1	68
2nd — — 17 ,, 22	61	9	7	4	22	13	2	10	19	4	3	-	7	-	-	9	7	-	5	3	3	9	3	-	-	1	1	4	21	21	248
3rd — — 24 to March 1	103	39	30	22	218	368	49	65	44	81	6	17	48	8	6	32	37	2	62	52	14	122	16	15	7	57	182	37	100	122	1,960
4th — March 3 to 8	58	50	13	9	104	264	32	58	20	39	3	10	1	8	1	8	9	7	32	14	9	165	10	16	5	64	51	13	32	64	1,169
5th — — 10 ,, 15	166	227	7	14	330	100	26	48	61	17	1	5	7	10	5	7	11	9	24	6	28	49	11	28	24	27	54	10	16	34	1,352
6th — — 17 ,, 22	84	33	28	7	124	120	69	51	152	47	3	4	1	16	39	7	19	6	14	8	14	94	18	3	9	19	106	11	27	33	1,166
7th — — 24 ,, 29	197	62	60	26	148	143	64	94	317	70	32	61	2	33	10	18	31	9	69	69	56	504	22	86	46	121	36	30	118	87	2,621
8th — — 31 to April 5	113	32	55	64	161	101	142	74	104	128	33	101	29	55	24	68	56	68	101	58	91	311	47	71	102	140	147	56	180	232	2,944
9th — April 7 to 12	66	28	16	38	94	83	35	63	27	129	45	55	20	33	80	88	98	55	140	115	101	254	65	79	119	107	100	72	128	154	2,487
10th — — 14 ,, 19	36	39	31	41	80	74	30	39	30	181	6	60	34	29	23	78	52	45	116	73	116	238	79	107	57	138	36	44	139	97	2,148
11th — — 21 ,, 26	100	79	76	73	72	92	45	116	16	176	16	30	63	17	31	51	112	80	83	87	122	233	170	64	88	197	43	53	134	181	2,700
12th — — 28 to May 2	14	11	22	4	32	41	10	40	24	67	-	4	32	12	8	29	30	26	46	4	24	129	133	35	29	61	31	13	65	41	1,017
Articles received to August 21 .	11	1	1	1	29	38	1	5	8	-	-	3	-	-	-	4	3	2	2	1	-	6	-	2	3	1	8	1	51	-	182
	1013	601	348	303	1253	1537	505	668	823	1039	148	350	245	221	227	398	465	309	695	491	580	2115	574	506	489	933	803	344	1012	1067	20,062

SUMMARY.

February	1,932
March	7,411
April	10,516
May, &c.	203
Total	20,062

Number of Packages	16,305
,, Articles brought in Unpacked . .	3,757
Total	20,062

THOMAS BELSHAW.

APPENDIX No. XIV.

RECEPTION OF FOREIGN AND COLONIAL

RETURN showing the Number of FOREIGN PACKAGES received

FOREIGN

	February 10 to 15.	February 17 to 22.	Feb. 24 to March 1.	March 3 to 8.	March 10 to 15.	March 17 to 22.	March 24 to 29.	March 31 to April 5.	April 7 to 12.	April 14 to 19.	April 21 to 26.	April 28 to May 3.	May 5 to 10.	May 12 to 17.	May 19 to 24.	May * 26 to 31.	June 2 to 7.
Austria	-	-	-	6	18	92	184	296	62	-	9	23	22	4	-	2	3
America	-	-	3	-	4	311	346	39	29	11	22	13	11	68	6	1	6
Belgium	-	27	236	284	68	31	95	78	102	15	10	3	2	4	1	-	-
Brazil	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
Bolivia	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
China	-	-	54	-	-	17	25	23	48	1	7	8	6	2	-	78	-
Denmark	-	-	-	3	-	-	-	49	2	-	-	10	-	20	-	-	-
Egypt	-	-	-	-	-	2	-	-	41	-	6	1	-	-	-	-	-
France	-	-	16	245	284	362	536	782	200	201	398	164	43	21	18	26	26
Greece	-	-	-	-	8	-	-	-	1	-	-	8	-	-	-	-	-
New Granada	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Holland	-	-	-	233	41	-	-	17	8	1	1	-	-	-	-	-	1
Hayti	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Italy	-	-	-	-	80	-	19	3	-	-	10	15	27	-	17	-	-
Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Peru	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	1
Persia	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	213	31	3	-	-	4	-	-	2	-	89	27	-
Spain	-	-	-	-	-	-	-	247	-	-	-	-	-	-	-	-	-
Sweden and Norway	-	18	-	-	-	-	-	2	1	2	2	-	-	-	3	-	5
Switzerland	-	95	19	16	-	6	1	2	3	3	1	2	1	-	1	-	-
Tunis	-	-	-	203	-	-	-	-	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	1	1	212	-	-	-	-	1
Zollverein	113	488	336	130	161	197	31	96	28	30	122	32	6	6	-	2	7
Society Islands	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Total Foreign Countries	113	628	664	1120	878	1055	1241	1636	528	270	589	492	120	125	135	140	50

BRITISH

	February 10 to 15.	February 17 to 22.	Feb. 24 to March 1.	March 3 to 8.	March 10 to 15.	March 17 to 22.	March 24 to 29.	March 31 to April 5.	April 7 to 12.	April 14 to 19.	April 21 to 26.	April 28 to May 3.	May 5 to 10.	May 12 to 17.	May 19 to 24.	May * 26 to 31.	June 2 to 7.
Australian Colonies	-	-	-	-	-	-	54	44	-	-	39	-	-	-	-	-	48
Antigua	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Bermuda	-	-	-	39	-	-	1	-	-	-	-	-	-	-	-	-	-
New Brunswick	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
Bahamas	-	-	3	-	-	-	5	-	-	-	-	1	-	-	-	-	-
Barbadoes	-	-	-	-	2	-	1	-	-	-	-	2	-	-	1	-	-
Channel Islands	-	-	-	-	-	-	-	-	-	47	-	-	-	-	-	-	-
Canada	14	107	102	1	-	1	2	18	-	2	-	-	-	1	-	-	-
Ceylon	-	-	-	-	-	-	-	-	8	1	-	1	-	-	-	-	-
Cape of Good Hope	-	-	34	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Grenada	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Guiana (British)	-	5	2	-	-	2	4	-	-	-	1	-	-	-	-	-	-
Hong Kong	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
St. Helena	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
India	-	-	-	-	71	-	70	106	8	-	7	2	136	3	-	-	16
Ionian Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Malta	-	-	-	-	49	-	-	-	-	-	-	-	-	-	-	-	-
Mauritius	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-
Montserrat	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
St. Vincent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nova Scotia	-	33	-	9	-	1	-	-	-	-	-	-	-	-	-	-	-
British Dependencies	14	147	145	50	131	4	137	170	16	50	50	14	136	4	2	-	64
Total Foreign and Colonial	127	775	809	1170	1009	1059	1378	1806	544	320	639	506	256	129	137	140	114

APPENDIX No. XIV.

GOODS LIABLE TO CUSTOMS DUTY.
in each week from February 12 to October 10, 1851.

COUNTRIES.

June 9 to 14.	June 16 to 21.	June 23 to 28.	June 30 to July 5.	July 7 to 12.	July 14 to 19.	July 21 to 26.	July 28 to Aug. 2.	August 4 to 9.	August 11 to 16.	August 18 to 23.	August 25 to 30.	September 1 to 6.	September 8 to 13.	September 15 to 20.	September 22 to 27.	October 6 to 10.	Total of each Country.	
7	4	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	735	Austria.
4	-	2	10	12	9	7	15	13	49	8	3	7	5	2	4	3	1,023	America.
-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	962	Belgium.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	Brazil.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Bolivia.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	269	China.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84	Denmark
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	Egypt.
17	15	9	25	14	8	13	12	3	5	4	1	-	2	-	8	1	3,459	France.
-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	18	Greece.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	New Granada.
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	303	Holland
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	Hayti.
-	13	1	4	-	5	1	-	-	-	-	-	-	-	-	-	-	195	Italy.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	Mexico.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	Peru.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Persia.
-	-	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111	Portugal.
-	-	12	-	-	-	-	-	1	2	-	-	1	1	-	-	-	386	Russia.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	247	Spain.
-	-	-	2	-	-	-	1	-	-	4	-	80	2	-	-	-	122	Sweden and Norway.
-	-	1	-	-	1	1	1	-	3	1	1	-	-	-	-	-	159	Switzerland.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	203	Tunis.
-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	216	Turkey.
5	22	8	1	2	15	17	6	1	2	-	-	3	5	1	1	-	1,874	Zollverein.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Society Islands.
34	54	147	46	28	38	39	35	19	62	17	6	91	15	4	13	4	10,436	Foreign Countries.
DEPENDENCIES.																		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	Australian Colonies.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	Antigua.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	Bermuda.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	New Brunswick.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	Bahamas
-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	Barbadoes.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	Channel Islands.
-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	249	Canada.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	Ceylon.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	Cape of Good Hope.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Grenada.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	Guiana (British).
-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	22	Hong Kong.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	St. Helena.
-	38	-	-	-	-	-	-	-	-	-	9	1	-	-	-	-	467	India.
-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7	Ionian Islands.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	Jamaica.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	Malta.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	Mauritius.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	Montserrat.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	St. Vincent.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	Nova Scotia.
-	39	2	1	-	-	-	-	-	22	-	9	1	-	-	-	-	1,208	British Dependencies.
34	93	149	47	28	38	39	35	19	84	17	15	92	15	4	13	4	11,644	Total Foreign and Colonial.

	Foreign Countries - - - - - - - .
	British Dependencies - - - - - - .
SUMMARY	Add duty paid or free - - - - - .

Total number Foreign and Colonial Packages - 12,550

F. R. MARRIOTT.

APPENDIX No. XV.

CEREMONIAL observed at the STATE OPENING of the EXHIBITION, on Thursday, the 1st of May, 1851.

(*Extracted from the "London Gazette" of May 10th*, 1851.)

THE Holders of Season Tickets were admitted at all doors on the East, South, and West of the Building, between the hours of nine and half-past eleven o'clock, and took their places, subject to police regulations, in the lower part of the Building, and in the Galleries, except the parts railed off in the Nave and Transept.

Exhibitors' attendants, who had been sanctioned by the Executive Committee, were admitted between the hours of eight and nine o'clock, at doors specified on their cards, and took their places by the counters or objects exhibited by their Employers.

A Chair of State, raised on a platform, and under a canopy, looking South, was placed at the North of the Centre of the Transept.

Her Majesty's Commissioners, with their Executive Committee, and the Foreign Acting Commissioners, assembled in the Transept, opposite the Platform, at half-past eleven o'clock.

His Grace the Archbishop of Canterbury, the Bishop of Winchester, Her Majesty's Ministers, and the Foreign Ministers took their places on the Platform, to the right and left of the Chair of State, also at half-past eleven o'clock.

Her Royal Highness the Duchess of Kent, with Her Royal Highness Princess Mary of Cambridge, His Royal Highness Prince Henry of the Netherlands, His Royal Highness the Duke of Cambridge, and His Serene Highness Prince Edward of Saxe Weimar, arrived at the Exhibition Building shortly before Her Majesty.

The Queen and His Royal Highness Prince Albert, with their Royal Highnesses the Prince of Wales and Princess Royal, attended by the Royal Household, (excepting the Vice-Chamberlain and the Gentlemen Ushers, who awaited Her Majesty's arrival at the Exhibition Building,) and accompanied by their Royal Highnesses the Prince and Princess of Prussia, and Prince Frederic William of Prussia, left Buckingham Palace at half-past eleven o'clock, and proceeded up Constitution Hill, down Rotten Row, to the North Entrance of the Exhibition Building, in the following order:—

In the First Carriage.

Field Officer in Brigade Waiting.
Silver Stick.
Two Gentlemen in attendance upon the Prince and Princess of Prussia.

In the Second Carriage.

Equerry to the Queen.
Equerry to the Prince.
Groom in Waiting to the Queen.
Groom of the Bedchamber to the Prince.

In the Third Carriage.

Treasurer of the Household.
Lord in Waiting to the Queen.
Lord of the Bedchamber to the Prince.
Clerk Marshal.

In the Fourth Carriage.

Gold Stick.
Captain of the Gentlemen-at-Arms.
Captain of the Yeoman of the Guard.
Master of the Buckhounds.

In the Fifth Carriage.

Bedchamber Women.
Two Maids of Honour.
Groom of the Stole to the Prince.

In the Sixth Carriage.

Two Ladies in attendance upon the Princess of Prussia
The Lady Superintendent.
The Lord Chamberlain.

In the Seventh Carriage.
Two Ladies of the Bedchamber.
Lord Steward.
The Master of the Horse.

In the Eighth Carriage.
H.R.H. The Prince of Prussia.
H.R.H. The Princess of Prussia.
H.R.H. Prince Frederic William of Prussia.
The Mistress of the Robes.

In the Ninth Carriage.
Her Majesty the Queen.
H.R.H. Prince Albert.
H.R.H. The Prince of Wales.
H.R.H. The Princess Royal.

On Her Majesty's arrival within the Building at twelve o'clock precisely, which was announced by a flourish of trumpets, the Queen and the Prince, with the Royal Family, the Foreign Guests and their Suites, proceeded tó the raised Platform, the Choir singing the National Anthem.

On the Queen taking her seat in the Chair of State, His Royal Highness Prince Albert joined the other Royal Commissioners, and when the music had ceased, proceeded at their head to the Platform, and read to Her Majesty the following Report of the Proceedings of the Commission up to that time, which he delivered to Her Majesty, together with the Catalogue of the Articles exhibited.

"MAY IT PLEASE YOUR MAJESTY,

"WE, the Commissioners appointed by Your Majesty's Royal Warrant of the 3rd of January, 1850, for the promotion of the Exhibition of the Works of Industry of all Nations, and subsequently incorporated by Your Majesty's Royal Charter of the 15th of August in the same year, humbly beg leave, on the occasion of Your Majesty's auspicious visit at the opening of the Exhibition, to lay before you a brief statement of our proceedings to the present time.

"By virtue of the authority graciously committed to us by Your Majesty, we have made diligent inquiry into the matters which Your Majesty was pleased to refer to us, namely, into the best mode of introducing the productions of Your Majesty's Colonies and of Foreign Countries into this Kingdom, the selection of the most suitable site for the Exhibition, the general conduct of the undertaking, and the proper method of determining the nature of the Prizes, and of securing the most impartial distribution of them.

"In the prosecution of these inquiries, and in the discharge of the duties assigned to us by Your Majesty's Royal Charter of Incorporation, we have held constant meetings of our whole body, and have, moreover, referred numerous questions connected with a great variety of subjects to Committees, composed partly of our own members and partly of individuals distinguished in the several departments of science and the arts, who have cordially responded to our applications for their assistance at a great sacrifice of their valuable time.

"Among the earliest questions brought before us was the important one as to the terms upon which articles offered for exhibition should be admitted into the Building. We considered that it was a main characteristic of the national undertaking in which we were engaged that it should depend wholly upon the voluntary contributions of the people of this country for its success; and we therefore decided, without hesitation, that no charge whatever should be made on the admission of such goods. We considered, also, that the office of selecting the articles to be sent should be entrusted in the first instance to Local Committees, to be established in every foreign country, and in various districts of Your Majesty's dominions, a general power of control being reserved to the Commission.

"We have now the gratification of stating that our anticipations of support in this course have in all respects been fully realized. Your Majesty's most gracious donation to the funds of the Exhibition was the signal for voluntary contributions from all, even the humblest classes of your subjects, and the funds which have been thus placed at our disposal amount at present to about 65,000*l*. Local Committees, from which we have uniformly received the most zealous co-operation, were formed in all parts of the United Kingdom, in many of your Majesty's colonies, and in the territories of the Hon. East India Company. The most energetic support has also been received from the Governments of nearly all the countries of the world, in most of which Commissions have been appointed for the special purpose of promoting the objects of an Exhibition justly characterized in Your Majesty's Royal Warrant as an Exhibition of the Works of Industry of all Nations.

"We have also to acknowledge the great readiness with which persons of all classes have come forward as Exhibitors. And here again it becomes our duty to return our humble thanks to your Majesty for the most gracious manner in which your Majesty has condescended to associate yourself with your subjects, by yourself contributing some most valuable and interesting articles to the Exhibition.

"The number of Exhibitors whose productions it has been found possible to accommodate is about 15,000, of whom nearly one-half are British. The remainder represent the productions of more than forty foreign countries, comprising almost the whole of the civilized nations of the globe. In arranging the space to be allotted to each, we have taken into consideration both the nature of its productions and the facilities of access to this country afforded by its geographical position. Your Majesty will find the productions of your Majesty's dominions arranged in the western portion of the Building, and those of foreign countries in the eastern. The exhibition is divided into the four great classes of—1. Raw Materials; 2. Machinery; 3. Manufactures; and 4. Sculpture and the Fine Arts. A further division has been made according to the geographical position of the countries represented; those which lie within the warmer latitudes being placed near the centre of the Building, and the colder countries at the extremities.

"Your Majesty having been graciously pleased to grant a site in this your Royal park for the purposes of the Exhibition, the first column of the structure now honoured by your Majesty's presence was fixed on the 26th of September last. Within the short period, therefore, of seven months, owing to the energy of the Contractors and the active industry of the workmen employed by them, a building has been erected, entirely novel in its construction, covering a space of more than 18 acres, measuring 1,848 feet in length, and 456 feet in extreme breadth, capable of containing 40,000 visitors, and affording a frontage for the Exhibition of Goods to the extent of more than 10 miles. For the original suggestion of the principle of this structure, the Commissioners are indebted to Mr. Joseph Paxton, to whom they feel their acknowledgments to be justly due for this interesting feature of their undertaking.

"With regard to the distribution of Rewards to deserving Exhibitors, we have decided that they should be given in the form of Medals, not with reference to merely individual competition, but as rewards for excellence in whatever shape it may present itself. The selection of the persons to be so rewarded has been entrusted to Juries equally composed of British subjects and of Foreigners, the former having been selected by the Commission from the recommendations made by the Local Committees, and the latter by the Governments of the Foreign Nations, the productions of which are exhibited. The names of these Jurors, comprising as they do many of European celebrity, afford the best guarantee of the impartiality with which the Rewards will be assigned.

"It affords us much gratification that, notwithstanding the magnitude of this undertaking, and the great distances from which many of the articles now exhibited have had to be collected, the day on which your Majesty has been graciously pleased to be present at the inauguration of the Exhibition is the same day that was originally named for its opening, thus affording a proof of what may, under God's blessing, be accomplished by goodwill and cordial co-operation among nations, aided by the means that modern science has placed at our command.

"Having thus briefly laid before your Majesty the results of our labours, it now only remains for us to convey to your Majesty our dutiful and loyal acknowledgements of the support and encouragement which we have derived throughout this extensive and laborious task from the gracious favour and countenance of your Majesty. It is our heartfelt prayer that this undertaking, which has for its end the promotion of all branches of human industry, and the strengthening of the bonds of peace and friendship among all nations of the earth, may, by the blessing of Divine Providence, conduce to the welfare of your Majesty's people, and be long remembered among the brightest circumstances of your Majesty's peaceful and happy reign."

Her Majesty returned the following gracious answer, handed to her by the Secretary of State:—

"I receive with the greatest satisfaction the Address which you have presented to Me on the opening of this Exhibition.

"I have observed with a warm and increasing interest the progress of your proceedings in the execution of the duties entrusted to you by the Royal Commission; and it affords me sincere gratification to witness the successful result of your judicious and unremitting exertions in the splendid spectacle by which I am this day surrounded.

"I cordially concur with you in the Prayer, that by God's blessing, this undertaking may conduce to the welfare of my People and to the common interest of the human race, by encouraging the arts of peace and industry, strengthening the bonds of union among the Nations of the Earth, and promoting a friendly and honourable rivalry in the useful exercise of those faculties, which have been conferred by a beneficent Providence for the good and the happiness of Mankind."

After which His Royal Highness Prince Albert took his place again by the side of Her Majesty.

His Grace the Archbishop of Canterbury, commencing with "The Lord's Prayer," proceeded to invoke God's Blessing upon the undertaking in the following words:—

"Almighty and everlasting God, who dost govern all things both in Heaven and in earth, without whom nothing is strong, nothing is holy, accept, we beseech Thee, the sacrifice of praise and thanksgiving, and receive these our prayers which we offer up unto Thee this day on behalf of the kingdom and people of this land. We acknowledge, O Lord, that thou hast multiplied on us blessings which thou mightest most justly have withheld. We acknowledge that it is not because of works of righteousness which we have done, but of Thy great mercy, that we are permitted to come before Thee with the voice of thanksgiving; and that, instead of humbling us for our offences, Thou hast given us fresh cause to praise Thee for Thine abundant goodness. And now, O Lord, we beseech Thee to bless the work which Thou hast enabled us to begin, and to regard with Thy favour our present purpose of uniting together in the bonds of peace and concord the different nations of the earth; for with Thee, O Lord, is the preparation of the heart in man. Of Thee it cometh that violence is not heard in our land, wasting, nor destruction within its borders. It is of Thee, O Lord, that nation does not lift up the sword against nation, nor learn war any more; it is of Thee that peace is within our walls and plenteousness within our palaces; it is of Thee that men go to and fro in safety, and knowledge is increased throughout the world, for the spirit of man is from Thee, and the inspiration of the Almighty giveth him understanding. Therefore, O Lord, not unto us, not unto us, but unto Thy name be all the praise. Whilst we survey the works of art and industry which surround us, let not our hearts be lifted up that we forget the Lord our God, as if our own power or the might of our hands had gotten us this wealth. Teach us ever to remember that all this store which we have prepared cometh of Thine hand, and is all Thine own. Both riches and honour come of Thee, and Thou reignest over all; and in Thine hand it is to make great and to give strength unto all. Now, therefore, O God, we thank Thee; we praise Thee, and entreat Thee so to overrule this assemblage of many nations that it may tend to the advancement of Thy glory, to the diffusion of Thy holy word, to the increase of general prosperity, by promoting peace and goodwill amongst the different races of mankind. Let the many mercies which we receive from Thee dispose our hearts to serve Thee more faithfully, who art the Author and Giver of them all. And, finally, O Lord, teach us so to use those earthly blessings which thou givest us richly to enjoy, that they may not withdraw our affections from those heavenly things which Thou hast prepared for them that love and serve Thee, through the merits and mediation of Thy Son Jesus Christ our Lord, to whom, with Thee and the Holy Ghost, be all honour and glory for ever and ever. Amen."

After which the Hallelujah Chorus was sung by the Choir.

A Royal Procession was then formed in the following order:—

Pursuivants of Arms, viz.:—

Bluemantle, H. Murray Lane, Esq. — Rouge Dragon, Edward S. Dendy, Esq.
Portcullis, George W. Collen, Esq. — Rouge Croix, William Courthope, Esq.

Contractor, Mr. Fox.* — *Architect*, Joseph Paxton, Esq.†

Superintendents of the Works.
C. H. Wild, Esq. — Owen Jones, Esq.

Financial Officer.
F. S. Carpenter, Esq.

Member of the Building Committee.
I. K. Brunel, Esq.

Members of the Finance Committee.
Samuel M. Peto, Esq., M.P. — Sir Alexander Young Spearman, Bart

Treasurers.
William Cotton, Esq. — Arthur K. Barclay, Esq.

Secretary to the Executive Committee.
Matthew Digby Wyatt, Esq.

Executive Committee.
George Drew, Esq. — Francis Fuller, Esq.
C. Wentworth Dilke, Esq. — Henry Cole, Esq.
Lieut.-Colonel William Reid, Royal Engineers, C.B.‡

Foreign Acting Commissioners.

Austria . . .	M. C. Buschek, Chevalier de Burg.
Bavaria . . .	Professor Dr. Schafhaütl, M. Theobald Boehm, M. Haindl.
Belgium . . .	M. Charles Cuylits, M. de Brouckère.
Denmark . . .	M. Regnar Westenholz.

* Now Sir C. Fox. † Now Sir J. Paxton. ‡ Now Sir W. Reid.

Egypt	Captain Abdul Hamed.
France	M. Sallandrouze de Lamornaix, M. Tresca.
Grand Duchy of Hesse	M. Rössler.
Greece	M. Ralli.
Hanse Towns	M. Piglheim.
Holland	M. Goossens, M. J. P. Dudok van Heel.
Northern Germany	M. Noback.
Portugal	M. Antonio Valdez, M. F. J. Vanzeller.
Prussia	M. Hebeler.
Rome	Signor Carlo Trebbi.
Russia	M. Gabriel Kamensky.
Sardinia	Chevalier Lencisa.
Saxony	Dr. Seyffarth, LL.D., M. Gustavus Doërstling.
Spain	Don Manuel de Ysasi, Don Ramon de la Sagra, M. Echevarria.
Sweden and Norway	M. Charles Tottie.
Switzerland	Dr. Bolley, M. Eichholzer.
Tunis	Signor Hamda Elmkaddem, M. Santillana
Turkey	M. Edward Zohrab.
Tuscany	Professor Corridi.
United States	Mr. Edward Riddle, Mr. Charles Stansbury, Mr. N. S. Dodge (Secretary).
Wurtemberg	M. Brand, M. Schiedmayer.
Zollverein	Baurath Stein.

Heralds, viz.:—

Windsor,
G. Rogers Harrison, Esq.

York,
W. T. King, Esq.

Richmond,
C. M. H. Gibbon, Esq.

Lancaster,
A. W. Woods, Esq.

Secretaries to the Royal Commission.

Edgar A. Bowring, Esq.
Sir Stafford H. Northcote, Bart.
J. Scott Russell, Esq.

Special Commissioners.

Dr. Lyon Playfair.
Lieut.-Colonel Lloyd.

Her Majesty's Commissioners.

Mr. Alderman Thompson, M.P.
Robert Stephenson, Esq., M.P., F.R.S.
William Hopkins, Esq., President of the Geological Society.
T. F. Gibson, Esq.
Richard Cobden, Esq., M.P.
Charles Barry, Esq., R.A., F.R.S.*
Sir Charles Lyell, F.R.S.
Sir R. Westmacott, R.A.
Lord Overstone.
Lord John Russell, M.P.
Earl of Rosse, K.P.
John Shepherd, Esq., Chairman of the East India Company.
Philip Pusey, Esq., M.P.
John Gott, Esq.
William Cubitt, Esq., F.R.S. †
Thomas Bazley, Esq.
Thomas Baring, Esq., M.P.
Sir Charles Lock Eastlake, P.R.A.
Right Hon. Henry Labouchere, M.P.
Lord Stanley. ‡
Earl Granville.
Duke of Buccleuch, K.G.

Her Majesty's Master of the Ceremonies,
Colonel the Honourable Sir Edward Cust, K.C.H.

Chargé d'Affaires of France,
M. Marescalchi.

Chargé d'Affaires of Mexico,
General Mendoza.

Chargé d'Affaires of Portugal,
Chevalier de Ribeiro.

Chargé d'Affaires of Peru,
Don Francisco de Rivero.

Chargé d'Affaires of Brazil,
M. de Amaral.

Chargé d'Affaires of Austria,
Baron Koller.

Envoy of Turkey,
M. Musurus.

Envoy of Greece,
Signor Tricoupi.

Envoy of Sardinia,
Marquis d'Azeglio.

Envoy of Spain,
Señor Isturitz.

Envoy of the United States,
Abbott Lawrence, Esq.

Envoy of Sweden,
Baron Rehausen.

Envoy of the Netherlands,
Count Schimmelpenninck.

Envoy of Denmark,
Count de Reventlow.

Envoy of Prussia,
Chevalier Bunsen.

Envoy of the Two Sicilies,
Prince Castelcicala.

Envoy of Russia,
Baron Brunnow.

Envoy of Bavaria,
Baron de Cetto.

Envoy of Belgium,
M. Van de Weyer.

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* Now Sir C. Barry.

† Now Sir W. Cubitt.

‡ Now Earl of Derb

Master-General of the Ordnance,
Field-Marshal the Marquis of Anglesey, K.G.

Commander-in-Chief,
Field-Marshal the Duke of Wellington, K.G.

Chancellor of the Exchequer,
Right Hon. Sir Charles Wood, Bart.

First Lord of the Admiralty,
Right Hon. Sir Francis T. Baring, Bart.

Secretary of State for the Home Department,
Right Hon. Sir George Grey, Bart., G.C.B.

Secretary-at-War,
Right Hon. Fox Maule.

President of the Board of Control,
Lord Broughton.

Secretary of State for Foreign Affairs,
Viscount Palmerston, G.C.B.

Secretary of State for the Colonies,
Earl Grey.

Chancellor of the Duchy of Lancaster,
Earl of Carlisle.

Postmaster-General,
Marquis of Clanricarde, K.P.

Lord Privy Seal,
Earl of Minto, G.C.B.

The Lord Chancellor,
Lord Truro.

The Bishop of Winchester in the absence of the Bishop of London.

His Grace the Archbishop of Canterbury.

White Wands; viz.:—

Treasurer of the Household,
Lord Marcus Hill.

Vice-Chamberlain,
Lord Edw. Geo. Fitzalan Howard.

Garter Principal King of Arms,
Sir Charles George Young.

Lord Steward,
Marquis of Westminster.

Lord Chamberlain,
Marquis of Breadalbane, K.T.

His Royal Highness PRINCE ALBERT,
Leading H.R.H. the Princess Royal.

THE QUEEN,
Leading H.R.H. the Prince of Wales.

H.R.H. the Prince of Prussia.

H.R.H. the Duchess of Kent.

H.R.H. Prince Henry of the Netherlands.

H.R.H. the Princess of Prussia.

H.R.H. Prince Frederic William of Prussia.

H.R.H. Princess Mary of Cambridge.

H.S.H. Prince Edward of Saxe Weimar.

H.R.H. the Duke of Cambridge.

Mistress of the Robes,
Duchess of Sutherland.

Lady of the Bedchamber,
Marchioness of Douro.

Lady of the Bedchamber in Waiting,
Countess of Charlemont.

Maid of Honour in Waiting,
Hon. Mary Seymour.

Maid of Honour in Waiting,
Hon. Flora Macdonald.

Bedchamber Woman in Waiting,
Hon. Mrs. Trevor.

Lady Superintendent,
Lady Caroline Barrington.

Lady in attendance upon H.R.H. the Duchess of Kent,
Lady Fanny Howard.

Ladies in attendance upon H.R.H. the Princess of Prussia,
Countess Louise Oriolla.
Countess A. de Hacke.

Lady in attendance upon H.R.H. Princess Mary of Cambridge,
Lady Georgiana Bathurst.

Gold Stick in Waiting,
General Viscount Combermere, G.C.B.

Master of the Horse,
Duke of Norfolk, K.G.

Groom of the Stole to H.R.H. Prince Albert,
Marquis of Abercorn, K.G.

Captain of the Yeomen of the Guard,
Marquis of Donegal, G.C.H.

Captain of the Gentlemen-at Arms
Lord Foley.

Master of the Buckhounds,
Earl of Bessborough.

Lord of the Bedchamber to H.R.H. Prince Albert,
in Waiting,
Lord George Lennox.

Lord in Waiting to the Queen,
Lord Waterpark.

Groom of the Bedchamber to H.R.H. Prince Albert,
in Waiting,
Lieut.-Colonel Francis Seymour.

Groom in Waiting to the Queen,
Colonel Berkeley Drummond.

Clerk Marshal,
Lord Alfred Paget.

Equerry to H.R.H. Prince Albert, in Waiting,
Lieut.-Colonel Francis Hugh Seymour.

Equerry to the Queen, in Waiting,
Colonel the Hon. Charles Grey.

Gentleman Usher of the Privy Chamber,
Hon. Frederick Byng.

Gentleman Usher to the Sword of State,
Sir William Martins.

Silver Stick in Waiting,
Colonel James M'Douall,
2nd Life Guards.

Field-Officer in Brigade Waiting,
Colonel Sir Ord Honyman, Bart.,
Grenadier Guards.

Gentlemen in attendance upon H.R.H. the Duchess of Kent,
Lieut.-Colonel Lord James Murray. Colonel Sir George Couper, Bart., C.B.

Gentlemen in attendance upon H.R.H. the Prince of Prussia,
Count Goltz. Major Von Boyen.

Gentleman in attendance upon H.R.H. the Princess of Prussia,
Count Pükler.

Gentlemen in attendance upon H.R.H. Prince Henry of the Netherlands,
Chevalier van Rappard. Chevalier de Cassonbroot.

Gentleman in attendance upon H.R.H. Princess Mary of Cambridge,
Baron Knesebeck.

Gentlemen in attendance upon H.R.H. Prince Frederic William of Prussia,
Lieutenant Von Heinz. Colonel Fischer.

Gentleman in attendance upon H.R.H. the Duke of Cambridge,
Lieut.-Colonel Lord William Paulet.

The Procession turning to the right, moved to the west end of the Nave by its north side, and returning by its south side, passed round the south end of the Transept, and continuing to the east end of the Nave, came back to the centre of the Transept; thus enabling all that were present to see Her Majesty and the Procession.

During the Procession at the Queen's approach the respective organs were successively played.

On Her Majesty's return to the platform the Queen commanded the Lord Chamberlain to declare "The Exhibition Open!" The declaration being made, it was announced to the Public by a flourish of trumpets, and by the firing of a Royal salute on the north of the Serpentine; whereupon the barriers which had kept the Nave and Transepts clear, were removed, and the Public allowed to circulate.

Her Majesty returned to Buckingham Palace by the route by which she came.

All the doors, which had been closed at half-past eleven o'clock, were re-opened upon Her Majesty's departure.

MUSICAL PERFORMANCE ON THE 1st MAY (FURNISHED BY SIR GEORGE SMART).

The English Jurors of Class X. (Musical Instruments) resident in London at the time, viz., Sir Henry R. Bishop, Sir George Smart, Mr. William Sterndale Bennett, and Dr. Wylde, were entrusted with the arrangement of the Musical Performances at the State Opening, and were formed into a Committee of Superintendence. A list is appended of those performers who rendered their gratuitous assistance on this occasion:—

Conductor.—Sir George T. Smart *Superintendent of the Organs in various parts of the Building.*—Mr. W. Sterndale Bennett Sir Henry R. Bishop directed the "*Hallelujah*" Chorus	3
From Her Majesty's Theatre. Mesdames S. Cruvelli and M. Cruvelli. Messieurs Calzolari, Coletti, Gardoni, Lablache, F. Lablache, and Sims Reeves	8
From the Royal Italian Opera House.—Mesdames Angri and Morra, Messieurs Bianchi, Formes, Stigelli, Taglinfico, Salvatore, Tamberlik, and Polonini.	9
Professional and Amateur Vocalists.—Mesdames Caradori Allan, Anderson, Endersohn, Ferrari, Goode, and Lunn. Mesdemoiselles Birch, E. Birch, Bishop, Byers, Dolby, A. Dolby, Land, Masson, Messent, Pyne, L. Pyne, Ransford, Salmon, Thornton, Phillips, and M. Williams	22
Messieurs Addison, E. Allan, Arnott, J Barnett, R. Barnett, W. Bell, D. Bell, Bodda, Broadhurst, Coward, Deane, Durand, Ferrari, Grove, Handel Gear, Hatton, King, Longhurst, Lunn, Nelson, J. A. Novello, H. Phillips, Piper, C. Potter, Ransford, H Robertson, Robinson, G. H. Rodwell, Rovedino, Shee, Steggall, Pence, Williams, and Wood	34
Pupils of Royal Academy of Music (ladies)	12
Superintendents of Ditto	2
Four Choirs.—St. Paul's Cathedral, 23; Westminster Abbey, 33; St. George's Chapel, Windsor, 25; The Chapel Royal, 27	108
The Sacred Harmonic Society.—Instrumental band, 85; chorus singers, 403; superintendents, 6	494
Organists in various parts of the Building.—Mr. Goss, Organist of St. Paul's Cathedral; Turle, Westminster Abbey; Dr. G. Elvey, St. George's Chapel, Windsor; Dr. Wylde, Professor Royal Academy of Music; Dr. Wesley, Organist of Winchester Cathedral; Mr. Hopkins, Temple Church; Mr. G. Cooper, St Sepulchre's Church; Mons. Danjon, Notre Dame, Paris; Mr. H. Smart, St. Luke's Church, Old Street	9
Two Military Bands.—The Coldstream Guards' Band (Mr. Godfrey, Master)	33
The Scotch Fusilier Guards' Band (Mr. Boose, Master)	40
Organ Builders.—M. Ducroquet, Gray and Davison, Hill, Schulze, Walker, and Willis	6
Music Porters for the Sacred Harmonic Society (6); Organ-blowers (34)	40
State Trumpeters	9
Total	829

APPENDIX No. XVI.

RETURN showing the AMOUNT of RECEIPTS, the NUMBER of VISITORS, and the LARGEST NUMBER in the BUILDING at any one time, on each Day that the EXHIBITION was open to the PUBLIC.

DATE.	DAY OF THE WEEK.	ENTRANCE FEE.	AMOUNT RECEIVED AT THE DOORS.			NUMBER OF VISITORS DURING THE HOURS THE BUILDING WAS OPEN TO THE PUBLIC.				LARGEST NUMBER OF VISITORS IN THE BUILDING AT ANY ONE TIME.	
						PAYING AT THE DOORS.	WITH SEASON TICKETS.*	TOTAL EACH DAY.	TOTAL TO THE END OF EACH WEEK.	NUMBER.	TIME.
			£.	s.	d.						
May 1	Thursday	..	..			..	25,000†	25,000		† The Court, orchestra, and other circumstances, rendered the excess of this amount over that of the actual number of Visitors holding Season Tickets considerably higher than what is indicated in the foot note, which applies to the column in general.	
2	Friday	£1	560	0	0	560	16,000	16,560			
3	Saturday	£1	482	0	0	482	16,000	16,482			
	Weekly Total	..	1,042	0	0	1,042	57,000	..	58,042		
5	Monday	5/	1,362	19	0	5,452	14,500	19,952			
6	Tuesday	5/	1,458	10	0	5,834	14,500	20,334			
7	Wednesday	5/	1,790	15	0	7,163	14,500	21,663			
8	Thursday	5/	2,018	0	0	8,072	14,500	22,572			
9	Friday	5/	1,824	10	0	7,298	14,500	21,798			
10	Saturday	5/	1,843	15	0	7,375	14,500	21,875			
	Weekly Total	..	10,298	9	0	41,194	87,000	..	128,194		
									186,236		
12	Monday	5/	1,597	10	0	6,390	14,500	20,890			
13	Tuesday	5/	2,229	10	0	8,918	14,500	23,418			
14	Wednesday	5/	2,064	15	0	8,259	14,500	22,759			
15	Thursday	5/	2,426	0	0	9,704	14,500	24,204		The Police did not commence counting the persons entering and leaving the building until after June 6th, when the rapid increase in the number of visitors began to be a matter of public interest.	
16	Friday	5/	2,556	10	0	10,226	14,500	24,726			
17	Saturday	5/	2,472	5	0	9,889	14,500	24,389			
	Weekly Total	..	13,346	10	0	53,386	87,000	..	140,386		
									326,622		
19	Monday	5/	2,345	0	0	9,380	14,500	23,880			
20	Tuesday	5/	3,360	15	0	13,443	14,500	27,943			
21	Wednesday	5/	3,512	5	0	14,049	14,500	28,549			
22	Thursday	5/	3,797	11	0	15,190	14,500	29,690			
23	Friday	5/	4,095	10	0	16,382	14,500	30,882			
24	Saturday	5/	5,078	0	0	20,312	14,500	34,812			
	Weekly Total	..	22,189	1	0	88,756	87,000	..	175,756		
									502,378		
26	Monday	1/	920	2	0	18,401	5,000	23,401			
27	Tuesday	1/	1,347	17	0	26,957	5,000	31,957			
28	Wednesday	1/	1,869	4	0	37,384	5,000	42,384			
29	Thursday	1/	2,375	18	0	47,518	5,000	52,518			
30	Friday	2/6	2,839	9	0	22,716	12,000	34,716			
31	Saturday	5/	1,770	15	0	7,083	12,000	19,083			
	Weekly Total	..	11,123	5	0	160,060	44,000	..	204,060		
									706,438		
June 2	Monday	1/	2,129	1	0	42,581	4,000	46,581			
3	Tuesday	1/	2,415	2	0	48,302	4,000	52,302			
4	Wednesday	1/	2,500	16	0	50,016	4,000	54,016			
5	Thursday	1/	2,566	17	0	51,337	4,000	55,337			
6	Friday	2/6	2,558	11	0	20,468	5,666	26,134		21,606	4 o'clock.
7	Saturday	5/	1,523	15	0	6,095	6,891	12,986		8,822	4 ,,
	Weekly Total	..	13,694	2	0	218,799	28,557	..	247,356		
									953,794		

* Including in each case from 1 to 2 per cent. of Staff, Jurors, and others not known to the Police, and counted as Visitors.

Return showing the Amount of Receipts, the Number of Visitors, and the largest Number in the Building at any one Time, &c.—*continued.*

Date.	Day of the Week.	Entrance Fee.	Amount Received at the Doors.			Number of Visitors during the Hours the Building was Open to the Public.				Largest Number of Visitors in the Building at any one Time.	
			£.	s.	d.	Paying at the Door.	With Season Tickets.	Total Each Day.	Total to the End of Each Week.	Number.	Time.
									953,794		
June 9	Monday . .	1/	2,436	4	0	48,724	5,480	54,204		46,167	3 o'clock.
10	Tuesday . .	1/	2,272	4	0	45,444	4,253	49,697		46,159	3 ,,
11	Wednesday .	1/	2,160	19	0	43,219	4,535	47,754		37,823	3 ,,
12	Thursday .	1/	2,233	7	0	44,667	3,651	48,318		38,146	3 ,,
13	Friday . .	2/6	2,206	5	0	17,650	6,870	24,520		12,555	4 ,,
14	Saturday. .	5/	1,634	17	0	6,539	7,563	14,102		10,025	5 ,,
	Weekly Total	..	12,943	16	0	206,243	32,352	..	238,595		
									1,192,389		
16	Monday . .	1/	2,854	9	0	57,089	6,680	63,769		46,374	4 ,,
17	Tuesday . .	1/	3,191	2	0	63,822	4,333	68,155		54,422	3 ,,
18	Wednesday .	1/	2,897	7	0	57,947	4,716	62,663		52,673	3 ,,
19	Thursday .	1/	2,984	12	0	59,692	4,171	63,863		46,792	2 ,,
20	Friday . .	2/6	2,819	4	6	22,553	9,281	31,834		19,405	2 ,,
21	Saturday. .	5/	1,674	10	0	6,698	6,034	12,732		8,607	4 ,,
	Weekly Total	..	16,421	4	6	267,801	35,215	..	303,016		
									1,495,405		
23	Monday . .	1/	3,016	11	6	60,331	7,224	67,555		55,379	3 ,,
24	Tuesday . .	1/	3,186	12	0	63,732	4,662	68,394		54,097	2 ,,
25	Wednesday .	1/	2,691	14	0	53,834	4,611	58,445		45,731	2 ,,
26	Thursday .	1/	2,722	10	0	54,450	3,331	57,781		45,631	2 ,,
27	Friday . .	2/6	2,969	6	0	23,754	5,279	29,033		21,613	3 ,,
28	Saturday. .	5/	1,590	16	0	6,363	5,138	11,501		10,645	5 ,,
	Weekly Total	..	16,177	9	6	262,464	30,245	..	292,709		
									1,788,114		
July 30	Monday . .	1/	2,469	16	0	49,396	3,483	52,879		46,090	2 ,,
1	Tuesday . .	1/	2,429	10	0	48,590	2,479	51,069		42,717	2 ,,
2	Wednesday .	1/	2,363	18	0	47,278	2,121	49,399		39,873	2 ,,
3	Thursday .	1/	2,651	19	0	53,039	2,599	55,638		44,890	3 ,,
4	Friday . .	2/6	2,592	2	6	20,737	5,270	26,007		20,945	4 ,,
5	Saturday .	5/	1,565	15	0	6,263	5,484	11,747		8,276	5 ,,
	Weekly Total	..	14,073	0	6	225,303	21,436	..	246,739		
									2,034,853		
7	Monday . .	1/	2,852	2	0	57,042	4,628	61,670		50,605	2 ,,
8	Tuesday . .	1/	3,169	5	0	63.385	2,577	65,962		54,016	3 ,,
9	Wednesday .	1/	2,710	6	0	54,206	3,849	58,055		48,512	3 ,,
10	Thursday .	1/	2,958	0	0	59,160	2,332	61,492		51,284	3 ,,
11	Friday . .	2/6	3,145	17	6	25,167	4,900	30,067		23,563	4 ,,
12	Saturday .	5/	1,589	15	0	6,359	4,822	11,181		8,433	5 ,,
	Weekly Total	..	16,425	5	6	265,319	23,108	..	288,427		
									2,323,280		
14	Monday . .	1/	2,957	8	0	59,148	3,546	62,694		52,128	3 ,,
15	Tuesday . .	1/	3,502	1	0	70,041	4,081	74,122		61,640	3 ,,
16	Wednesday .	1/	2,910	4	0	58,204	2,422	60,626		50,533	3 ,,
17	Thursday .	1/	3,023	5	0	60,465	3,281	63,746		51,336	3 ,,
18	Friday . .	2/6	3,762	7	6	30,099	5,239	35,338		27,700	3 ,,
19	Saturday. .	5/	1,360	15	0	5,443	3,884	9,327		7,121	5 ,,
	Weekly Total	..	17,516	0	6	283,400	22,453	..	305,853		
									2,629,133		

Return showing the Amount of Receipts, the Number of Visitors, and the largest Number in the Building at any one Time, &c.—*continued.*

Date.	Day of the Week.	Entrance Fee.	Amount Received at the Doors.			Number of Visitors during the Hours the Building was Open to the Public.				Largest Number of Visitors in the Building at any one Time.	
			£.	s.	d.	Paying at the Doors.	With Season Tickets.	Total Each Day.	Total to the End of Each Week	Number.	Time.
									2,629,133		
July 21	Monday . .	1/	3,338	7	0	66,767	3,873	70,640		58,541	2 o'clock.
22	Tuesday . .	1/	3,236	2	0	64,722	3,439	68,161		55,264	2 ,,
23	Wednesday .	1/	2,438	14	0	48,774	1,825	50,599		42,390	3 ,,
24	Thursday .	1/	2,286	1	0	45,721	1,737	47,458		40,881	3 ,,
25	Friday . .	2/6	2,984	0	0	23,872	3,010	26,882		21,325	4 ,,
26	Saturday. .	5/	1,478	0	0	5,912	4,487	10,399		7,946	5 ,,
	Weekly Total	..	15,761	4	0	255,768	18,371	..	274,139		
									2,903,272		
28	Monday . .	1/	3,194	13	0	63,893	3,277	67,170		54,933	2 ,,
29	Tuesday . .	1/	3,308	10	0	66,170	2,866	69,036		57,677	2 ,,
30	Wednesday .	1/	2,835	6	0	56,706	1,676	58,382		47,499	2 ,,
31	Thursday .	1/	2,800	16	0	56,016	1,293	57,309		46,315	3 ,,
Aug. 1	Friday . .	2/6	2,852	2	6	22,817	4,080	26,897		21,198	4 ,,
2	Saturday. .	5/	1,324	9	0	5,298	4,427	9,725		7,167	5 ,,
	Weekly Total	..	16,315	16	6	270,900	17,619	..	288,519		
									3,191,791		
4	Monday . .	1/	3,006	18	0	60,138	2,493	62,631		53,254	2 ,,
5	Tuesday . .	1/	3,236	9	0	64,729	3,340	68,069		56,931	2 ,,
6	Wednesday .	1/	2,833	4	6	56,664	2,475	59,139		44,368	2 ,,
7	Thursday .	1/	2,859	16	0	57,196	2,922	60,118		48,385	3 ,,
8	Friday . .	2/6	1,920	11	6	15,365	3,101	18,466		14,630	4 ,,
9	Saturday. .	2/6	1,584	15	0	12,678	5,670	18,348		14,792	4 ,,
	Weekly Total	..	15,441	14	0	266,770	20,001	..	286,771		
									3,478,562		
11	Monday . .	1/	2,829	19	0	56,599	2,035	58,634		49,038	2 ,,
12	Tuesday . .	1/	2,826	19	0	56,539	2,015	58,554		49,167	2 ,,
13	Wednesday .	1/	2,264	10	6	45,290	2,527	47,817		39,343	2 ,,
14	Thursday .	1/	2,386	0	0	47,720	1,732	49,452		39,589	3 ,,
15	Friday . .	2/6	2,151	7	0	17,211	3,650	20,861		16,623	4 ,,
16	Saturday. .	2/6	1,592	7	6	12,739	4,002	16,741		13,646	4 ,,
	Weekly Total	..	14,051	3	0	236,098	15,961	..	252,059		
									37,302,621		
18	Monday . .	1/	2,506	16	0	50,136	1,389	51,525		43,612	3 ,,
19	Tuesday . .	1/	2,773	16	6	55,476	1,603	57,079		47,695	2 ,,
20	Wednesday .	1/	2,217	8	0	44,348	219	44,567		35,499	3 ,,
21	Thursday .	1/	2,470	2	6	49,402	1,080	50,482		41,633	2 ,,
22	Friday . .	2/6	1,957	12	6	15,661	2,317	17,978		13,927	3 ,,
23	Saturday. .	2/6	1,434	17	6	11,479	3,429	14,908		11,607	3 ,,
	Weekly Total	..	13,360	13	0	226,502	10,037	..	236,539		
									3,967,160		
25	Monday . .	1/	2,436	14	0	48,734	287	49,021		41,414	2 ,,
26	Tuesday . .	1/	2,493	10	0	49,870	1,441	51,311		44,190	3 ,,
27	Wednesday .	1/	1,896	1	0	37,921	307	38,228		31,618	3 ,,
28	Thursday .	1/	2,167	11	0	43,351	894	44,245		37,412	2 ,,
29	Friday . .	2/6	1,559	17	6	12,479	3,111	15,590		12,771	4 ,,
30	Saturday. .	2/6	1,306	15	0	10,454	2,598	13,052		10,855	4 ,,
	Weekly Total	..	11,860	8	6	202,809	8,638	..	211,447		
									4,178,607		

Return showing the Amount of Receipts, the Number of Visitors, and the largest Number in the Building at any one Time, &c.—*continued.*

Date.	Day of the Week.	Entrance Fee.	Amount Received at the Doors.	Number of Visitors during the Hours the Building was Open to the Public.				Largest Number of Visitors in the Building at any one Time.	
				Paying at the Doors.	With Season Tickets.	Total Each Day.	Total to the End of Each Week.	Number.	Time.
			£. s. d.				4,178,607		
Sept 1	Monday . .	1/	2,465 10 0	49,310	924	50,234		43,170	2 o'clock.
2	Tuesday . .	1/	2,407 15 0	48,155	1,711	49,866		42,115	3 ,,
3	Wednesday .	1/	2,080 12 0	41,612	305	41,917		36,005	3 ,,
4	Thursday .	1/	2,137 18 0	42,758	1,451	44,209		37,209	3 ,,
5	Friday . .	2/6	1,593 7 6	12,747	2,979	15,726		12,753	4 ,,
6	Saturday . .	2/6	1,198 15 0	9,590	3,082	12,672		10,857	4 ,,
	Weekly Total	..	11,883 17 6	204,172	10,452	..	214,624		
							4,393,231		
8	Monday . .	1/	2,767 17 0	55,357	1,495	56,852		48,843	3 ,,
9	Tuesday . .	1/	2,795 1 0	55,901	2,114	58,015		50,651	2 ,,
10	Wednesday .	1/	2,395 5 6	47,905	2,201	50,106		41,774	2 ,,
11	Thursday .	1/	2,637 19 6	52,759	2,068	54,827		46,050	2 ,,
12	Friday . .	2/6	1,890 0 0	15,120	2,839	17,959		14,528	3 ,,
13	Saturday . .	2/6	1,451 15 0	11,614	4,659	16,273		14,002	4 ,,
	Weekly Total	..	13,937 18 0	238,656	15,376	..	254,032		
							4,647,263		
15	Monday . .	1/	2,933 10 6	58,670	1,827	60,497		52,268	2 ,,
16	Tuesday . .	1/	3,008 9 0	60,169	2,453	62,622		54,127	2 ,,
17	Wednesday .	1/	2,551 1 0	51,021	2,736	53,757		44,427	2 ,,
18	Thursday .	1/	2,810 1 6	56,201	2,399	58,600		49,555	2 ,,
19	Friday . .	2/6	2,227 2 0	17,817	3,671	21,488		18,205	4 ,,
20	Saturday . .	2/6	1,604 13 0	12,837	4,529	17,366		14,802	4 ,,
	Weekly Total	..	15,134 17 0	256,715	17,615	..	274,330		
							4,921,593		
22	Monday . .	1/	2,863 6 0	57,266	2,098	59,364		50,108	2 ,,
23	Tuesday . .	1/	2,859 7 0	57,187	3,195	60,382		50,246	2 ,,
24	Wednesday .	1/	2,572 12 0	51,452	3,088	54,540		46,662	3 ,,
25	Thursday .	1/	2,725 14 0	54,514	2,647	57,161		48,007	2 ,,
26	Friday . .	2/6	2,415 15 0	19,326	4,368	23,694		20,034	3 ,,
27	Saturday . .	2/6	1,852 2 6	14,817	5,419	20,236		16,541	4 ,,
	Weekly Total	..	15,288 16 6	254,562	20,815	..	275,377		
							5,196,970		
29	Monday . .	1/	3,295 15 0	65,915	2,627	68,542		59,089	2 ,,
30	Tuesday . .	1/	3,303 4 0	66,064	3,282	69,346		60,039	2 ,,
Oct. 1	Wednesday .	1/	2,830 11 0	56,611	2,460	59,071		51,570	2 ,,
2	Thursday .	1/	3,080 12 6	61,612	2,686	64,298		55,379	2 ,,
3	Friday . .	2/6	3,354 3 0	26,833	5,218	32,051		27,626	3 ,,
4	Saturday . .	2/6	2,861 14 0	22,902	7,738	30,640		26,074	3 ,,
	Weekly Total	..	18,726 19 6	299,937	24,011	..	323,948		
							5,520,918		
6	Monday . .	1/	5,175 16 0	103,516	4,299	107,815		89,242	2 ,,
7	Tuesday . .	1/	5,231 10 0	104,630	5,285	109,915		93,224	2 ,,
8	Wednesday .	1/	5,283 3 0	105,663	4,097	109,760		87,275	2 ,,
9	Thursday .	1/	4,344 7 6	86,887	3,926	90,813		72,344	2 ,,
10	Friday . .	2/6	4,914 1 6	39,312	7,601	46,913		39,767	3 ,,
11	Saturday . .	2/6	4,845 13 6	38,765	14,296	53,061		45,067	4 ,,
	Weekly Total	..	29,794 11 6	478,773	39,504	..	518,277		
							6,039,195		

JAMES J. WADE.

from 4 to 16 buckets, with which the water could be readily baled out; and to prevent in the first instance the loss of even the few seconds necessary for filling them, the buckets were kept constantly full. There were besides 10 stations at which 10 full buckets of water were constantly kept. At 16 of the first-named stations a hydrant, being a description of water-cock of large dimensions, was connected with the main water-pipes. To this a hose could be readily attached, either for the supply of an engine or to carry a stream of water direct on any point where it might be necessary, the pressure on the water-pipes being seldom less than 60 feet, and thus being sufficient to reach, even without engines, nearly every part of the Building.

The fire annihilators were introduced at the request of the Fire Annihilator Company. Fortunately no opportunity occurred of testing their efficiency in the Exhibition Building.

The position of the different fire-engines at each station, as also the arrangements connected with the water supply, are shown in the accompanying plan of the Building.

Alarms of Fire.

During the whole period of the Exhibition, from February to December 1851, including the preparatory arrangements, the time of its being opened to the public, and the removal of its contents, there was only one alarm of fire, on the 8th May, caused by a draft-pipe attached to a gas-stove in the office of Messrs. Fox and Henderson, igniting some papers in a box under an adjoining counter; it was instantly discovered and extinguished with a few buckets of water from the nearest fire-station.

The confidence given by these precautionary measures was very beneficial. Many Exhibitors were at first under apprehension for the safety of their goods, and intended to insure them at great expense from risk by fire, but considered it unnecessary, when they saw the precautions adopted by the Executive Committee for the safety of the Building and its contents. The rates of Insurance which were at first demanded being one per cent.

The abundant supply of filtered water was of great advantage to all connected with the Exhibition, but especially to the poorer class of visitors from the country, who came up bringing their dinner with them; a glass of water from the nearest fountain or water-tap (sometimes mixed with that which was forbidden in the Refreshment Courts), forming an indispensable auxiliary to their comfort during their long summer day's pleasure.

TABLE showing the IMPLEMENTS kept continually at each FIRE STATION.

The Roman Numerals and Letters in the first column refer to the accompanying plan.

No. of Station.	Engines with Stores complete	No. of Cisterns.	Hydrants.	Spare Buckets.	Spare Hose.	Axes.	Hand Pumps.	Fire Annihilators.
I.	1	2	–	16	–	–	–	–
II.	–	1	–	12	–	–	–	–
III.	–	1	–	12	–	–	–	4
IV.	–	1	–	12	–	–	–	4
V.	–	1	–	10	–	–	–	3
VI.	–	1	–	10	–	–	–	4
VII.	–	1	–	12	–	–	–	–
VIII.	–	1	–	12	–	–	–	–
IX.	–	1	–	12	–	–	–	–
X.	–	1	–	12	–	–	–	–
XI.	–	1	1	4	1	1	–	–
XII.	–	1	1	4	1	1	–	–
XIII.	–	1	1	4	1	1	–	–
XIV.	–	1	1	4	1	1	–	–
XV.	–	1	1	4	1	1	–	–
XVI.	–	1	1	4	1	1	–	–
XVII.	–	1	1	4	1	1	–	–
XVIII.	–	1	1	4	1	1	–	–
XIX.	–	1	1	4	1	1	–	–
XX.	–	1	1	[illegible]	1	1	–	–
XXI.	–	1	1	4	1	1	–	–
XXII.	–	1	1	4	1	1	–	–
XXIII.	–	1	1	4	1	1	–	–
XXIV.	–	1	1	4	1	1	–	–
XXV.	–	1	1	4	1	1	–	–
XXVI.	–	1	1	4	1	1	–	–
XXVII.	–	–	–	10	–	–	–	
Car. for.	1	27	16	194	16	16	–	15

No of Station.	Engines with Stores complete.	Cisterns.	Hydrants.	Spare Buckets.	Spare Hose.	Axes	Hand Pumps.	Fire Annihilators.
Bro. for.	1	27	16	194	16	16	–	15
XXVIII.	–	–	–	10	–	–	–	–
XXIX.	–	–	–	10	–	–	–	–
XXX.	–	–	–	10	–	–	–	–
XXXI.	–	–	–	10	–	–	–	–
XXXII.	–	–	–	10	–	–	–	–
XXXIII.	–	–	–	10	–	–	–	–
XXXIV.	–	–	–	10	–	–	–	–
XXXV.	–	–	–	10	–	–	–	–
XXXVI.	–	–	–	10	–	–	–	–
XXXVII.	–	1	–	11	–	–	–	–
XXXVIII.	–	1	–	11	–	–	–	–
XXXIX.	–	1	–	12	–	–	–	–
XL.	–	1	–	12	–	–	–	–
XLI.	–	1	–	–	–	–	–	–
XLII.	–	1	–	–	–	–	–	–
XLIII.	–	1	–	10	–	–	–	–
XLIV.	–	1	–	10	–	–	–	–
b	1	–	–	–	–	–	–	–
c	1	–	–	–	–	–	–	–
d	1	–	–	–	–	–	–	–
e	1	–	–	–	–	–	–	–
f	1	–	–	–	–	–	–	–
g	1	–	–	–	–	–	–	–
h	1	–	–	–	–	–	–	–
*	–	5	–	60	–	–	–	–
†	–	–	–	–	–	–	18	–
Total	8	40	16	410	16	16	18	15

* Distributed through the machinery.

† Distributed through the Building.

C. J. GIBB,
Captain Royal Engineers.

28th January 1852.

APPENDIX No. XXVII.

RETURN showing the Number of each description of CATALOGUE and other Works explanatory received for the same, as furnished by the Contractors,

Date.	Entrance Fee.	Number of Visitors	Numbers of each Work Sold							
			Small Official Catalogue			Synopsis of Contents of Building		Popular Guide 3d.	Plans.	
			English. 1s.	French 2s 6d.	German 2s 6d.	English 6d	French 6d		Lithographed in Colours 6d.	Letter-press. 1d.
May 1	Season Tickets	25,000	5,684	– – Not published until June 24.	– – Not published until July 21.	165	– – Not published until June 24.	– – Not published until June 2.	233	– – Not published until May 26
2*	£1	16,560	2,561	– –	– –	289	– –	– –	267	– –
3†	£1	16,422	1,779	– –	– –	237	– –	– –	142	– –
5	5/	19,952	2,610	– –	– –	340	– –	– –	267	– –
6	5/	20,334	2,431	– –	– –	351	– –	– –	186	– –
7	5/	21,663	2,354	– –	– –	388	– –	– –	182	– –
8	5/	22,572	2,210	– –	– –	539	– –	– –	170	– –
9*	5/	21,798	1,785	– –	– –	515	– –	– –	137	– –
10†	5/	21,875	1,460	– –	– –	547	– –	– –	117	– –
12	5/	20,890	1,339	– –	– –	666	– –	– –	236	– –
13	5/	23,418	1,496	– –	– –	790	– –	– –	288	– –
14	5/	22,759	1,435	– –	– –	638	– –	– –	282	– –
15	5/	24,204	1,529	– –	– –	837	– –	– –	284	– –
16*	5/	24,726	1,427	– –	– –	893	– –	– –	311	– –
17†	5/	24,389	1,063	– –	– –	561	– –	– –	308	– –
19	5/	23,880	1,274	– –	– –	590	– –	– –	366	– –
20	5/	27,943	1,772	– –	– –	577	– –	– –	389	– –
21	5/	28,549	1,747	– –	– –	500	– –	– –	394	– –
22	5/	29,690	1,656	– –	– –	1,061	– –	– –	342	– –
23*	5/	30,882	1,981	– –	– –	863	– –	– –	347	– –
24†	5/	34,812	2,126	– –	– –	891	– –	– –	262	– –
26	1/	23,402	2,968	– –	– –	752	– –	– –	130	125
27	1/	31,957	3,222	– –	– –	1,031	– –	– –	138	86
28	1/	42,384	3,820	– –	– –	1,068	– –	– –	106	– –
29	1/	52,528	4,535	– –	– –	1,486	– –	– –	142	– –
30*	2/6	34,716	2,065	– –	– –	929	– –	– –	190	– –
31†	5/	19,083	731	– –	– –	330	– –	– –	86	– –
June 2	1/	46,581	3,630	– –	– –	733	– –	277	130	37
3	1/	52,302	3,665	– –	– –	687	– –	294	115	39
4	1/	54,016	3,619	– –	– –	674	– –	436	140	50
5	1/	55,337	3,300	– –	– –	667	– –	475	124	53
6*	2/6	26,134	1,583	– –	– –	485	– –	433	151	56
7†	5/	12,986	538	– –	– –	220	9	180	93	15
9	1/	54,204	3,811	– –	– –	276	75	508	113	37
10	1/	49,697	3,209	– –	– –	267	73	343	66	30
11	1/	47,754	2,587	– –	– –	306	52	423	74	40
12	1/	48,318	2,889	– –	– –	482	57	457	55	76
13*	2/6	24,520	1,120	– –	– –	397	27	245	111	35
14†	5/	14,102	422	– –	– –	150	29	150	78	12
16	1/	62,769	3,153	– –	– –	589	67	414	138	31
17	1/	68,155	3,187	– –	– –	750	40	415	150	37
18	1/	62,663	2,785	– –	– –	700	56	455	137	39
19	1/	63,863	2,573	– –	– –	789	35	385	130	70
20*	2/6	31,834	1,147	– –	– –	615	49	271	168	28
21†	5/	22,732	378	– –	– –	236	34	75	83	16
		1,495,405	103,656	– –	– –	26,877	603	6,188	8,460	910

NOTE.—* denotes Fridays and † Saturdays.

APPENDIX No. XXVII.

of the Exhibition, Sold in the **Building** each Day of the Exhibition, as well as the Amount Messrs. **Spicer Brothers** and **Clowes and Sons.**

Numbers of each Work Sold.									Other Books, &c. (See end of Table.)	Total Number of Volumes, Plans, &c., Sold.	Amount Received.		
Hunt's Handbook.			Illustrated Catalogue.										
In Volumes.		In Parts, 10 in number, 6d. each.	In Volumes £3 3s.	In Parts.									
Vol. I. 3s.	Vol. II. 3s.			I. 10s.	II. 10s.	III. 15s.	IV. 15s.	V. 15s.			£.	s.	d.
- -	- -	- -	- -	418	- -	- -	- -	- -	24	6,524	503	9	0
- -	- -	- -	- -	105	- -	- -	- -	- -	13	3,235	194	12	3
- -	- -	- -	- -	47	- -	- -	- -	- -	6	2,211	122	0	0
- -	- -	- -	- -	24	- -	- -	- -	- -	8	3,249	157	15	6
- -	- -	- -	- -	31	- -	- -	- -	- -	15	3,016	150	6	3
- -	- -	- -	- -	24	- -	- -	- -	- -	5	2,953	144	0	3
- -	- -	- -	- -	19	- -	- -	- -	- -	3	2,941	137	15	3
- -	- -	- -	- -	17	- -	- -	- -	-	4	2,458	114	2	0
- -	- -	- -	- -	13	- -	- -	- -	-	3	2,140	96	2	9
- -	- -	- -	- -	9	- -	- -	- -	- -	6	2,256	94	1	6
- -	- -	- -	- -	12	- -	- -	- -	- -	4	2,590	108	4	0
- -	- -	- -	- -	11	- -	- -	- -	- -	26	2,392	100	11	6
- -	- -	- -	- -	10	- -	- -	- -	- -	42	2,702	110	0	0
- -	- -	- -	- -	11	- -	- -	- -	- -	23	2,665	107	4	9
- -	- -	- -	- -	10	- -	- -	- -	- -	20	1,982	80	12	6
Not published until August 11.	Not published until September 31.	Not published until June 28.	Not published until October 8.	5	Not published until July 16.	Not published until August 26.	Not published until October 6.	Not published until October 10.	15	2,250	90	5	9
- -	- -	- -	- -	11	- -	- -	- -	- -	38	2,787	118	14	6
- -	- -	- -	- -	12	- -	- -	- -	- -	50	2,703	116	6	6
- -	- -	- -	- -	11	- -	- -	- -	- -	53	3,123	124	6	9
- -	- -	- -	- -	12	- -	- -	- -	- -	67	3,270	137	17	3
- -	- -	- -	- -	10	- -	- -	- -	- -	125	3,414	145	8	9
- -	- -	- -	- -	1	- -	- -	- -	- -	53	4,029	172	17	8
- -	- -	- -	- -	7	- -	- -	- -	- -	72	4,556	196	7	11
- -	- -	- -	- -	3	- -	- -	- -	- -	88	5,185	227	5	9
- -	- -	- -	- -	4	- -	- -	- -	- -	95	6,262	272	17	9
- -	- -	- -	- -	1	- -	- -	- -	- -	93	3,278	135	2	9
- -	- -	- -	- -	2	- -	- -	- -	- -	131	1,280	52	16	6
- -	- -	- -	- -	-	- -	- -	- -	- -	150	4,907	211	4	5
- -	- -	- -	- -	-	- -	- -	- -	- -	193	4,993	212	16	3
- -	- -	- -	- -	-	- -	- -	- -	- -	129	5,050	209	11	5
- -	- -	- -	- -	-	- -	- -	- -	- -	111	4,730	193	3	4
- -	- -	- -	- -	-	- -	- -	- -	- -	81	2,769	102	11	4
- -	- -	- -	- -	3	- -	- -	- -	- -	55	1,111	40	7	7
- -	- -	- -	- -	1	- -	- -	- -	- -	68	4,889	210	2	9
- -	- -	- -	- -	4	- -	- -	- -	- -	86	4,078	179	1	11
- -	- -	- -	- -	9	- -	- -	- -	- -	77	3,568	151	4	4
- -	- -	- -	- -	3	- -	- -	- -	- -	95	4,114	169	7	0
- -	- -	- -	- -	4	- -	- -	- -	- -	107	2,046	78	2	3
- -	- -	- -	- -	4	- -	- -	- -	- -	76	921	34	8	0
- -	- -	- -	- -	3	- -	- -	- -	- -	114	4,509	187	8	1
- -	- -	- -	- -	3	- -	- -	- -	- -	134	4,716	193	12	3
- -	- -	- -	- -	8	- -	- -	- -	- -	135	4,315	175	4	10
- -	- -	- -	- -	1	- -	- -	- -	- -	89	4,072	160	7	9
- -	- -	- -	- -	7	- -	- -	- -	- -	85	2,370	87	8	6
- -	- -	- -	- -	4	- -	- -	- -	- -	61	867	32	12	7
- -	- -	- -	- -	894	- -	- -	- -	- -	2,928	149,516	6,639	13	11

Return showing the Number of each description of Catalogue and other

Date.	Entrance Fee.	Number of Visitors.	NUMBERS OF EACH WORK SOLD.							
			SMALL OFFICIAL CATALOGUE.			SYNOPSIS OF CONTENTS OF BUILDING.		POPULAR GUIDE. 2*d.*	PLANS.	
			English. 1*s.*	French. 2*s.* 6*d.*	German. 2*s.* 6*d.*	English. 6*d.*	French. 6*d.*		Lithographed in Colours. 6*d.*	Letterpress. 1*d.*
June 23	1/	67,555	2,915	-	- -	799	48	373	155	50
24	1/	68,394	2,781	10	- -	922	55	323	163	47
25	1/	58,445	2,153	204	- -	907	119	299	141	55
26	1/	57,761	1,997	173	- -	827	94	221	147	17
27*	2/6	29,033	961	92	- -	581	65	193	145	26
28†	5/	11,501	270	77	- -	155	35	60	59	1
30	1/	52,879	2,130	121	- Not published until July 21. -	735	60	190	103	16
July 1	1/	51,069	2,063	126	- -	620	67	278	116	17
2	1/	49,399	1,775	85	- -	551	42	228	108	17
3	1/	55,638	1,939	99	- -	648	44	211	142	14
4*	2/6	26,007	896	88	- -	440	38	162	163	19
5†	5/	11,747	371	45	- -	152	20	56	65	1
7	1/	61,670	2,339	139	- -	686	65	263	152	20
8	1/	65,967	2,893	115	- -	839	40	289	161	12
9	1/	58,055	2,189	105	- -	707	34	250	85	44
10	1/	61,492	2,248	131	- -	669	37	261	125	13
11*	2/6	30,067	1,258	101	- -	605	40	172	205	18
12†	5/	11,181	349	58	- -	185	24	39	55	2
14	1/	62,694	2,678	166	- -	760	34	186	145	25
15	1/	74,122	3,325	130	- -	893	35	292	204	6
16	1/	60,626	2,134	101	- -	652	42	215	130	12
17	1/	63,746	2,489	122	- -	815	26	230	158	14
18*	2/6	35,338	1,707	118	- -	792	38	117	206	12
19†	5/	9,327	370	69	- -	193	16	38	66	11
21	1/	70,640	2,423	138	175	767	46	194	169	25
22	1/	68,161	2,470	55	168	780	29	170	144	18
23	1/	50,599	2,152	129	103	650	34	151	171	11
24	1/	47,458	1,737	168	109	520	34	165	178	15
25*	2/6	26,882	1,131	69	73	489	20	133	188	12
26†	5/	10,299	295	63	28	149	18	44	79	2
28	1/	67,170	2,313	159	97	656	32	172	149	22
29	1/	69,036	2,292	116	88	617	47	200	138	25
30	1/	58,382	1,706	73	56	563	25	183	136	17
31	1/	57,309	1,720	110	69	499	31	127	132	17
Aug. 1*	2/6	26,897	1,033	72	54	502	21	109	153	15
2†	5/	9,725	238	43	25	143	23	48	65	2
4	1/	62,631	2,223	86	82	621	27	161	143	26
5	1/	68,069	2,705	96	70	552	23	199	126	43
6	1/	59,139	2,065	80	56	493	18	161	108	17
7	1/	60,118	2,107	90	57	733	23	170	116	21
8*	2/6	18,466	636	76	61	378	13	84	124	12
9†	2/6	18,348	643	74	45	432	22	72	156	12
11	1/	58,634	2,080	151	78	914	53	132	244	19
12	1/	58,554	1,964	138	76	889	28	134	271	8
13	1/	47,817	1,438	83	57	695	42	155	247	13
14	1/	49,452	1,426	91	66	653	48	133	147	14
15*	2/6	20,861	878	75	52	556	38	98	132	6
16†	2/6	16,741	517	69	51	359	31	51	128	5
18	1/	51,525	1,799	138	60	968	65	147	185	11
19	1/	57,079	2,306	151	59	988	59	172	290	13
20	1/	44,567	1,571	117	51	801	72	109	137	17
21	1/	50,482	1,584	129	50	797	52	148	125	15
22*	2/6	17,978	853	100	52	507	39	173	152	5
23†	2/6	14,908	525	83	44	169	24	81	111	8
		3,967,160	193,736	5,496	2,112	59,850	2,758	15,212	16,303	1,825

NOTE.—* denotes Fridays and † Saturdays.

Works explanatory of the Exhibition, Sold in the Building, &c.—*continued.*

Numbers of each Work Sold.									Other Books, &c. (*See* end of Table.)	Total Number of Volumes, Plans, &c., Sold.	Amount Received.		
Hunt's Handbook.			Illustrated Catalogue.										
In Volumes.		In Parts, 10 in number. 6*d.* each.	In Volumes. £3 3*s.*	In Parts.									
Vol. I. 3*s.*	Vol. II. 3*s.*			I. 10*s.*	II. 10*s.*	III. 15*s.*	IV. 15*s.*	V. 15*s.*			£.	*s.*	*d.*
Not published until August 11.	Not published until September 13.	– –	Not published until October 8	5	Not published until July 16.	Not published until August 26.	Not published until October 6.	Not published until October 10.	109	4,454	181	7	7
– –	– –	– –	– –	2	– –	– –	– –	– –	93	4,396	176	15	6
– –	– –	– –	– –	2	– –	– –	– –	– –	59	3,939	168	3	2
– –	– –	– –	– –	2	– –	– –	– –	– –	96	3,574	155	0	3
– –	– –	– –	– –	3	– –	– –	– –	– –	79	2,145	85	7	1
– –	– –	73	– –	– –	– –	– –	– –	– –	52	782	34	3	7
– –	– –	37	– –	3	– –	– –	– –	– –	107	3,501	153	16	9
– –	– –	126	– –	2	– –	– –	– –	– –	83	3,518	151	3	0
– –	– –	81	– –	8	– –	– –	– –	– –	92	2,987	129	15	5
– –	– –	64	– –	3	– –	– –	– –	– –	78	3,242	139	16	4
– –	– –	62	– –	8	– –	– –	– –	– –	76	1,952	84	9	1
– –	– –	34	– –	6	– –	– –	– –	– –	105	855	41	11	11
– –	– –	40	– –	2	– –	– –	– –	– –	115	3,821	168	0	6
– –	– –	98	– –	1	– –	– –	– –	– –	90	4,538	195	17	2
– –	– –	78	– –	1	– –	– –	– –	– –	106	3,599	153	16	10
– –	– –	90	– –	1	– –	– –	– –	– –	99	3,674	160	2	7
– –	– –	101	– –	7	– –	– –	– –	– –	490	2,997	165	11	2
– –	– –	56	– –	6	– –	– –	– –	– –	123	897	42	17	10
– –	– –	58	– –	4	– –	– –	– –	– –	271	4,227	189	2	7
– –	– –	37	– –	3	– –	– –	– –	– –	143	5,068	221	16	8
– –	– –	51	– –	5	24	– –	– –	– –	91	3,457	162	5	4
– –	– –	30	– –	2	24	– –	– –	– –	153	4,063	186	11	8
– –	– –	85	– –	13	50	– –	– –	– –	135	3,275	166	19	9
– –	– –	64	– –	10	38	– –	– –	– –	72	947	63	1	3
– –	– –	68	– –	9	38	– –	– –	– –	65	4,117	214	10	11
– –	– –	62	– –	8	22	– –	– –	– –	80	4,006	195	8	3
– –	– –	33	– –	5	19	– –	– –	– –	81	3,539	174	16	5
– –	– –	47	– –	8	22	– –	– –	– –	84	3,087	160	6	1
– –	– –	68	– –	11	38	– –	– –	– –	104	2,336	122	12	5
– –	– –	55	– –	7	23	– –	– –	– –	81	844	52	6	5
– –	– –	41	– –	3	19	– –	– –	– –	92	3,755	185	5	10
– –	– –	44	– –	9	15	– –	– –	– –	86	3,677	177	8	9
– –	– –	33	– –	7	14	– –	– –	– –	67	2,880	135	0	2
– –	– –	51	– –	15	24	– –	– –	– –	89	2,884	150	1	7
– –	– –	63	– –	4	16	– –	– –	– –	130	2,171	101	19	3
– –	– –	45	– –	9	32	– –	– –	– –	87	760	51	6	1
– –	– –	41	– –	8	23	– –	– –	– –	87	3,528	172	12	4
– –	– –	33	– –	4	10	– –	– –	– –	140	4,001	185	11	9
– –	– –	34	– –	5	11	– –	– –	– –	159	3,207	149	8	4
– –	– –	18	– –	8	24	– –	– –	– –	89	3,456	165	19	3
– –	– –	83	– –	7	19	– –	– –	– –	134	1,627	80	9	3
– –	– –	105	– –	10	19	– –	– –	– –	111	1,701	82	19	4
10	– –	46	– –	5	11	– –	– –	– –	119	3,862	177	12	6
12	– –	33	– –	8	14	– –	– –	– –	176	3,751	172	12	2
15	– –	20	– –	8	12	– –	– –	– –	216	3,001	133	0	
14	– –	26	– –	2	13	– –	– –	– –	210	2,843	126	9	5
16	– –	34	– –	2	13	– –	– –	– –	166	2,066	93	12	2
27	– –	31	– –	20	34	– –	– –	– –	134	1,457	89	4	6
11	– –	19	– –	9	14	– –	– –	– –	213	3,639	163	1	2
16	– –	27	– –	7	13	– –	– –	– –	99	4,200	192	17	9
12	– –	22	– –	5	14	– –	– –	– –	118	3,046	141	4	8
7	– –	11	– –	4	12	– –	– –	– –	192	3,126	140	3	10
7	– –	12	– –	5	8	– –	– –	– –	178	2,091	93	9	5
19	– –	17	– –	1	17	– –	– –	– –	123	1,222	66	9	7
166	– –	2,487	– –	1,206	699	– –	– –	– –	9,455	311,305	14,165	6	6

Return showing the Number of each description of Catalogue and other

Date.	Entrance Fee.	Number of Visitors.	NUMBERS OF EACH WORK SOLD.							
			SMALL OFFICIAL CATALOGUE.			SYNOPSIS OF CONTENTS OF BUILDING.		POPULAR GUIDE. 2*d.*	PLANS.	
			English. 1*s.*	French. 1*s.* 6*d.*	German. 2*s.* 6*d.*	English. 6*d.*	French. 6*d.*		Lithographed in Colours. 6*d.*	Letterpress. 1*d.*
Aug. 25	1/	49,021	1,654	145	64	424	28	184	197	8
26	1/	51,311	1,834	124	79	712	29	184	114	13
27	1/	38,228	1,211	95	38	514	48	106	95	15
28	1/	44,245	1,401	102	48	513	53	122	133	12
29*	2/6	15,590	607	82	46	354	57	63	149	3
30†	2/6	13,052	391	56	31	200	28	42	87	7
Sept. 1	1/	50,234	1,578	101	66	561	54	157	130	5
2	1/	49,866	1,771	87	52	676	48	141	162	12
3	1/	41,917	1,120	56	25	436	37	107	97	8
4	1/	44,209	1,297	90	40	448	38	205	100	9
5*	2/6	15,726	593	62	36	254	33	99	88	13
6†	2/6	12,672	392	49	33	177	20	54	88	-
8	1/	56,852	1,317	87	65	583	46	139	100	13
9	1/	58,015	1,642	112	45	726	41	168	127	12
10	1/	50,106	1,139	75	26	377	37	245	124	11
11	1/	54,627	1,127	81	30	500	42	195	71	16
12*	2/6	17,959	553	105	30	401	58	206	173	11
13†	2/6	16,273	455	59	17	253	35	43	97	8
15	1/	60,497	1,354	97	44	580	51	135	104	12
16	1/	62,622	1,679	82	37	742	38	161	151	14
17	1/	53,757	1,119	57	31	705	29	185	137	14
18	1/	58,600	1,221	76	25	586	34	180	123	22
19*	2/6	21,468	798	67	36	377	37	99	159	7
20†	2/6	17,366	465	45	22	277	20	57	92	7
22	1/	59,364	1,127	72	54	425	34	125	146	13
23	1/	60,382	1,361	59	26	528	19	179	142	2
24	1/	54,540	1,178	61	19	367	31	129	117	6
25	1/	57,161	1,212	58	27	406	28	80	105	60
26*	2/6	23,694	897	45	35	398	23	114	140	17
27†	2/6	20,236	455	52	12	218	28	55	92	6
29	1/	68,542	1,174	84	25	429	31	128	85	11
30	1/	69,346	1,552	58	28	448	31	172	134	5
Oct. 1	1/	59,071	1,100	41	23	358	15	134	95	10
2	1/	64,298	1,221	47	13	599	27	125	99	28
3*	2/6	32,051	1,007	36	25	670	18	122	186	6
4†	2/6	30,640	750	54	40	492	23	96	125	4
6	1/	167,815	1,617	59	25	730	30	168	151	14
7	1/	109,915	1,768	74	18	764	18	86	133	15
8	1/	109,760	1,503	61	22	638	27	42	130	37
9	1/	90,813	1,322	45	19	515	22	4	153	34
10*	2/6	46,913	1,317	56	30	697	19	-	215	50
11†	2/6	53,061	1,192	41	14	490	21	-	140	52
Sales in Building -	-	-	242,207	8,490	3,533	80,398	4,144	20,248	21,579	2,447
Sales at City Catalogue Office -	-	-	43,647	686	646	3,827	115	5,965	608	540
Total - -		6,039,195	285,854	9,176	4,179	84,225	4,259	26,213	22,187	2,987

NOTE.—* denotes Fridays and † Saturdays.

Works explanatory of the Exhibition, Sold in the Building, &c.—*continued.*

Numbers of each Work Sold.									Other Books, &c. (See end of Table.)	Total Number of Volumes, Plans, &c., Sold.	Amount Received.		
Hunt's Handbook.			Illustrated Catalogue.										
In Volumes.		In Parts, 10 in number. 6*d*. each	In Volumes. £3 3*s*.	In Parts.									
Vol. I. 3*s*.	Vol. II. 3*s*.			I. 10*s*.	II. 10*s*.	III. 15*s*.	IV. 15*s*.	V. 15*s*.			£.	*s*.	*d*.
7	Not published until September 13.	30	Not published until October 8.	2	6	5	Not published until October 6.	Not published until October 10.	353	3,107	139	19	8
4	-	18	-	4	4	11	-	-	191	3,321	156	16	2
12	-	17	-	-	6	12	-	-	140	2,309	152	18	2
9	-	29	-	3	11	11	-	-	287	2,734	129	5	1
13	-	13	-	4	4	18	-	-	143	1,556	83	13	7
6	-	18	-	3	-	18	-	-	104	991	57	19	7
8	-	17	-	6	4	13	-	-	219	2,909	139	7	5
12	-	15	-	6	8	7	-	-	259	3,256	148	8	7
7	-	28	-	2	-	8	-	-	95	2,026	93	4	11
9	-	11	-	3	5	7	-	-	113	2,375	111	17	6
12	-	11	-	6	18	13	-	-	112	1,350	80	5	4
9	-	17	-	6	21	13	-	-	117	996	65	19	10
7	-	3	-	3	6	8	-	-	283	2,660	120	0	7
14	-	19	-	1	5	3	-	-	260	3,175	137	9	1
10	-	27	-	7	10	8	-	-	245	2,341	105	8	1
10	-	36	-	2	9	6	-	-	96	2,221	103	8	0
16	-	36	-	3	7	4	-	-	118	1,721	76	19	5
19	34	29	-	10	29	16	-	-	137	1,241	85	4	5
5	15	30	-	7	21	10	-	-	374	2,839	134	11	6
9	14	12	-	3	10	3	-	-	178	3,133	140	2	7
19	30	27	-	1	10	3	-	-	120	2,487	109	7	7
10	17	14	-	3	13	5	-	-	329	2,658	114	5	5
17	22	12	-	7	18	15	-	-	224	1,895	101	18	8
31	39	14	-	3	8	8	-	-	124	1,212	67	6	11
11	21	9	-	8	16	8	-	-	335	2,404	114	18	5
13	12	19	-	1	7	-	-	-	316	2,684	109	2	8
5	13	11	-	5	11	6	-	-	169	2,128	101	15	8
7	15	16	-	5	9	6	-	-	355	2,391	104	11	1
21	27	6	-	6	14	7	-	-	165	1,916	95	1	3
11	14	22	-	10	19	17	-	-	118	1,128	74	12	9
9	13	20	-	5	13	7	-	-	255	2,289	110	18	8
8	10	9	-	2	10	4	-	-	340	2,811	122	2	1
7	8	6	-	4	11	5	-	-	259	2,076	96	18	1
6	8	6	-	5	8	9	-	-	109	2,310	107	19	5
12	12	24	-	3	12	9	-	-	193	2,335	109	8	5
17	24	5	-	16	18	24	-	-	161	1,849	115	15	6
16	14	27	-	13	19	16	12	-	126	3,037	165	7	10
8	12	2	-	6	12	7	27	-	90	3,040	171	8	7
13	18	8	3	2	8	4	15	-	80	2,611	149	13	2
4	4	2	7	-	3	5	9	-	60	2,208	134	3	2
13	21	7	6	5	12	6	9	5	131	2,599	162	17	0
16	22	19	13	2	8	2	16	32	124	2,204	186	10	0
639	439	3,190	29	1,399	1,142	367	88	37	17,462	407,838	19,014	8	4
433	361	2,205	282	2,251	1,580	1,377	622	-	748	65,893	-		-
1,072	800	5,395	311	3,650	2,722	1,744	710	37	18,210	473,731	-		-

Particulars relative to Catalogue, &c.—*continued.*

SUMMARY of EXPENDITURE in the BUILDING.

	£.	s.	d.					d.	
Entrance fee, 5/ and upwards,	3,399	2	9	expended by	625,161	persons,	averages	1·30	per head.
,, 2/6 - -	3,000	0	6	,,	735,451	,,	,,	0·97	,,
,, 1/ - -	12,615	5	1	,,	4,678,583	,,	,,	0·67	,,
Total all rates -	19,014	8	4	,,	6,039,195	,,	,,	·755	

WORKS grouped together under the heading "OTHER BOOKS, &c.," in the preceding Table.

Index in two Parts - - - - - - -	571
Catalogue, with Index - - - - - - -	89
Small Catalogue, interleaved - - - - - -	352
Ditto in Parts - - - - - -	110
Ditto ditto interleaved - - - - - -	129
Illustrated Catalogue:—	
Introduction - - - - - - -	27
In Classes - - - - - - -	478
Interleaved - - - - - - -	37
Catalogues, with List of Prices:—	
British Section - - - - - - -	727
Saxony Section - - - - - - -	1563
Zollverein Section - - - - - - -	392
Austrian Section - - - - - - -	724
Zollverein, German - - - - - - -	828
Zollverein, English - - - - - - -	280
Russian Section - - - - - - -	322
Key to Catalogue - - - - - - - -	5090
German Plans (letterpress) - - - - - - -	698
French ditto ditto - - - - - - -	828
Hunt's Handbook, in one volume - - - - - -	111
Jury Awards - - - - - - - -	67
Covers for Catalogue - - - - - - - -	3992
Cab Fares - - - - - - - - -	791
Peterson's Maps - - - - - - - -	4
	18,210

(Signed) SPICER BROTHERS,
CLOWES & SONS,
Joint Contractors.

APPENDIX No. XXVII*a*.

STATISTICS of PRINTING furnished by Messrs. CLOWES and SONS, Printers of the OFFICIAL CATALOGUES and other Works explanatory of the EXHIBITION.

Trades necessary for the production of the Catalogues.

- Type-Founders.
- Printers' Joiners.
- Iron-Founders.
- Paper-Makers.
- Wholesale Stationers.
- Letter-Press Printers.
- Printing Ink Makers.
- Composition Roller Makers.
- Engravers on Wood.
- Lithographic Printers.
- Hot-Pressers.
- Bookbinders.

TABLE I. Showing the Quantity and Value of New Type manufactured, and the Average Number of Persons required and Time occupied in its production; also the Quantity of Type actually used for each Publication.

NAMES OF TYPE.	Weight in lbs.	Value.			Number of Persons Employed.			Time occupied.
					Men.	Boys.	Total.	
		£.	s.	d.				Days.
Small Pica - - -	6,000	350	0	0	7	4	11	73
Bourgeois - - -	8,121	609	0	0	17	10	27	60
Brevier - - - -	25,917	2,351	11	9	70	42	112	57
Minion - - - -	24,236	2,120	13	0	63	38	101	69
Nonpareil - - -	1,000	200	0	0	4	3	7	60
Ornamental Type - - Column Rules - - Space Lines - - -	5,975	403	15	0	12	7	19	60
	71,249	6,034	19	9	173	104	277	

TITLE OF WORK.	Weight in lbs.	No. of Types required for each Work.*
Small Official Catalogue—English -	5,664	3,877,008
Do. Do. French -	5,712	3,909,864
Do. Do. German -	4,604	3,103,460
Synopsis of Contents of the Building	425	202,400
Do. Do. French -	425	202,400
Popular Guide - - - - -	984	210,944
Index to Official Catalogue - -	2,780	1,555,710
Priced Lists - - - - -	5,376	4,199,062
Hunt's Hand-Book - - - -	4,114	2,301,120
Plans of the Building equal to— -	195	225,888
Key to the Catalogue - - -	31	19,200
Illustrated Catalogue - - -	28,210	17,345,120
Reports and Awards by the Juries (large type)	30,107	11,513,336
Do. Do. (small type) -	14,124	8,903,280
Report of Commissioners - - -	3,752	1,824,084

Type-Founding. The first step towards the mechanical production of the Catalogues was the preparation of type on a scale commensurate with the magnitude of the undertaking. Two sizes were selected—one for the Small Catalogue and the French and German translations; the other for the Illustrated Catalogue. Of each of these types it was estimated that not less than six tons would be required; making a total of twelve tons, to be manufactured within the short space of six weeks.

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* Type-founders and compositors are paid by the 1000 types. The former find the quantity by actual enumeration; the latter by admeasurement: assuming the letter *n* to represent the average thickness of all type, the width of the page is estimated to consist of so many of this character, and is multiplied by the length of the page; and this result by the number of pages in a sheet: thus—

102 × 83 = 8,466 × 16 = 135,456

As these works progressed, a larger supply was found necessary. New works illustrative of the Exhibition were contemplated: and the supply of new type was eventually increased to 37 tons, in addition to the usual resources of the house. The cost of this large quantity of type and other necessary material amounted to above 6000*l*. And, adding the quantity required for the Report of the Commissioners and for the Jury Reports, a weight amounting to nearly 48 tons was set apart for the service of the Exhibition of 1851.

The printers of the Catalogues are type-founders as well as printers, and by working night and day, with relays of hands, they produced a great portion of this quantity themselves: the assistance of other founders, however, was necessary; and the Messrs. Miller and Richard of Edinburgh, and the respective firms of Besley, Caslon, and Figgins, of London, supplied the remainder.

The technical names of the type afford but little information: they appear, however, in Table I., with the quantity of each sort manufactured, and the weight required for each separate work.

As an illustration of the amount of type in use in the various publications, it may be observed that the combined quantity would be equal to the printed surface of 116 single *Times'* newspapers.

A great subdivision of labour is necessary in the manufacture of type: the persons employed are usually in the proportion of 5 men to 3 boys. The following statement shows the weight of four descriptions of type manufactured in one week by 20 men and 12 boys, and the number of separate types in each quantity:—

360 lbs.	Small Pica,	equal	124,720	separate types.
240 „	Bourgeois,	„	122,880	„
190 „	Brevier,	„	113,280	„
168 „	Minion,	„	109,200	„

Although type is much lower in price now than it was some few years back, it is still an expensive article, not so much from the cost of the raw material—a compound of lead, antimony, and tin—as from the amount of labour necessary for its production, five operations being required to complete a single type;* while, from its natural softness, and the heavy pressure of the machine in printing, it soon wears out. In the case of the small English Catalogue, from the large number of copies printed, the value has been deteriorated at least 60 per cent.

The price of type varies according to its size; each page of the small English Catalogue cost 20s. 6¾*d*., and of the Illustrated Catalogue 21s. 9½*d*. Large as these prices may appear, they are exceedingly low, when compared with the average market price, and are such as could only be obtained by contracting for the manufacture of large quantities.

Printers' Joiners; Iron-Founders.—After the type is arranged and formed into pages by the compositors, iron frames, pieces of wood, and small wedges (technically named chases, furniture, and quoins), are necessary to fix it securely before printing: and of these articles 800 chases, weighing 17½ tons, 16,000 feet of furniture, and 12,800 quoins, were required for this purpose.

TABLE II. Showing the Number of Reams of Paper manufactured for the Official Catalogues; for the Reports of the Juries; and the Report of the Commissioners; also the Weight in lbs., and Amount of Paper Duty thereon.

DESCRIPTION OF PAPER.	No. of Reams.	No. of lbs. Weight.	Amount of Paper Duty, at 1½*d*. per lb. £.	s.	d.
Super-royal, for the Illustrated Catalogue - -	2,500	100,000	625	0	0
Double Foolscap for the small Official Catalogues -	24,173	507,631	3,172	14	1½
Coloured Paper for Covers to Small Catalogues -	357	14,067	87	18	4½
Miscellaneous Papers - - - - - - - -	200	6,000	37	10	0
Total for the Catalogues - -	27,230	627,698	3,923	2	6
Super-royal for the 4to. editions of the Jury Reports and Illustrated Catalogue - - - - - -	250	15,000	93	15	0
Super-royal for the Jury Reports (8vo. edition) -	2,800	112,000	700	0	0
Report of the Commissioners - - - - - -	100	3,400	21	5	0
Total - -	30,380	758,098	4,738	2	6

The small Official Catalogue, with its cover, before the edges were cut, weighed 1 lb.; the duty on each copy was therefore 1½*d*., or ⅛th the selling price: equal to 12½ per cent on the cost of the Catalogues, but 21 per cent. on the manufacture of the Paper.

*** To this must be added punch cutting, and matrice and mould-making: 320 steel punches, and the same number of copper matrices, are necessary to the manufacture of each complete fount of type. Had it been required to have cut punches for the various descriptions of type used in the Exhibition publications, it would have been equivalent to the additional labour of 10 persons for 274 days.**

Paper.—The manufacture of paper includes a variety of processes—from the sorting of the rags to the production of a complete sheet of paper. Two sizes only were necessary, described as super-royal and double-foolscap: the folding of the sheet into 4, 8, and 16, forming the different-sized books. For the convenience and economy of printing the small Catalogue, the double-foolscap was however made into four sizes, the sheets folding into 8, 12, 16, and 24 leaves. The Synopsis, consisting of 96 pages, was printed on one of these large sheets, at one impression. The entire quantity of paper manufactured was 338 tons (see Table II.); and its production required labour equal to 338 hands (men and women) for three months. Messrs. Spicer Brothers, (Wholesale Stationers,) joint contractors in the production of the Catalogues, supplied the whole of the paper; and so efficient were their arrangements with the various mills engaged in its manufacture, that not a single failure occurred in the appointed times of delivery.

TABLE III. Average Number of Persons engaged in Editing, Compiling, and Printing the various Catalogues, &c.

Editor	1	Compositors	44
Compilers	17	Readers and Boys	8
French Translators	2	Pressmen	32
German Translator	1	Machinemen and Boys	55
Annotators	30	Wetters of Paper	2
Indexers	20	Warehousemen and Boys	11
Total	71		152

Compiling and Printing.—The Catalogue Forms issued to the Exhibitors (in order that they might supply their own descriptions of the articles exhibited) were printed in four colours, representing the four great divisions of the Exhibition; on the receipt of those forms they were examined by the compilers, who made such alterations as they considered requisite; determined, to the best of their judgment, the Class to which the article exhibited more especially belonged; and forwarded the returns thus corrected to the printers. On Jan. 30 the first portion of these returns was placed in the hands of the compositors, and speedily set up in type for the Illustrated Catalogue: keeping each of the *four* divisions separate; and distinguishing, by a figure at the end of the last line of each article, the presumed Class to which it belonged. Proofs of these returns were forwarded from time to time to the compilers, who examined them as to their general correctness, and returned them to the printer for such emendations as were necessary: these effected, 30 proofs were printed, and forwarded to the Executive; to the editor, who transmitted copies to the various annotators; to the compiler of the small Catalogue, in order that the descriptions might be reduced; and to the French and German translators, for the same purpose of reduction and translation. Ten weeks now had elapsed—the 26th of April had arrived—the whole of the exhibitors' returns received up to that date were in type, amounting to nearly 2000 pages: this mass, however, was still unarranged; and it was not until four days previous to the opening of the Exhibition that any defined plan of classification could be determined upon. The contractors were bound under a penalty to produce a certain quantity of the small Catalogue on the 1st of May; to effect this within four days seemed almost impracticable. It was originally intended by the contractors that the Illustrated Catalogue should also appear at the same time, but all hope of producing anything more than a specimen Part was abandoned.

The classification, which should have been the labour of literary men became the task of the operative printer: the type was arranged in 368 slips, each representing a page; slip after slip was taken up by the compositor, and the exhibitors' returns, as numerically distinguished, collected together, until the whole 30 Classes of the United Kingdom were arranged. The same arrangement necessarily took place for the Colonies and Foreign States; for although each State had but one numerical order for all the articles exhibited they stand in the Catalogue in the respective State in the same order as the 30 Classes of the United Kingdom; upwards of 100 distinct arrangements had to be effected: the classification completed, revises were forwarded to the compiler, to receive the numbers by which the articles were to be distinguished in the Building: 320 pages was the prescribed limit of the small Catalogue, and 368 pages were in type; a further reduction had to take place in the description of the articles exhibited; and it was not until the midnight immediately preceding the opening of the Exhibition that the small Catalogue was finally "ready for press."

The first or specimen Part of the Illustrated Catalogue was also proceeded with on the same principle laid down for the production of the small Catalogue; and on the morning of the 1st of May both these works were on sale in the Exhibition Building.

The printing in itself would have been but a small affair for the number of persons employed, could the matter have been placed before them according to the usual routine of authorship and printing: this, however, was impracticable; and no better plan could perhaps have been suggested than that followed to a most successful termination and through most extraordinary difficulties.

After the opening, additional returns came in. The first edition was found exceedingly imperfect: the superintendents of Classes undertook the examination of the proofs, supplied omissions, and corrected the numerical arrangement; many articles were found in one class that belonged to another; the exhibitors' descriptions had again to be curtailed to make room for additions amounting to 41 pages; and a second edition was produced, with greater labour and exertion than the first.

New returns continued to come in—removals from one class to another were still found necessary, and it was not until a *third* edition was produced, at a cost of labour equal to the two preceding, that a correct Catalogue of the Exhibition could be said to exist.

Under these circumstances it was found impracticable either to produce the Illustrated Catalogue in a complete form, or the French and German translations, until a late period of the Exhibition: and as the labours of the printer did not really commence until within four days of the opening, so neither did they terminate until within four days of the close of the Exhibition.

A detail of the progress of the Illustrated Catalogue would be a repetition of the circumstances connected with the small Catalogue; inasmuch, however, as the larger work is five times the size of the smaller, and the care and attention required more minute, the cost and labour in the printing-office were at least ten times greater.

French and German compositors were employed on the foreign translations. The Exhibition of all Nations, however, had created a demand for foreign papers; and the compositors, knowing that the employment on the Catalogues would not extend over a long period, accepted other engagements; and those works were finally and successfully brought to a close by men who knew not a word of the respective languages: French and German readers, however, were retained to ensure correctness. The repeated alterations and transpositions in the English Catalogue created a great amount of confusion in the foreign Catalogues. The same mechanical classification, applied to the English, could not be effected: a number of persons were therefore employed to cut up each return separately, and paste them on sheets of paper under their respective class and country, and again place them in the compositors' hands for reproduction. Of the French Catalogue 146 pages, and of the German 62, were in this manner a second time set up in type.

The time occupied in printing the various works was 216 days. (*See* Tables IV. and V.) The whole of the other employments necessary for their production were also completed within the same period.

Every alteration in the small Catalogue created a corresponding alteration in the Illustrated Catalogue, and in the French and German translations.

The cost of these alterations, compared with the usual cost for setting up the types, was—

On the small Catalogue as *four* to *one*.
„ Illustrated Catalogue as *five* to *two*.
„ French Translation as *five* to *two*.
„ German Translation as *two* to *one*.

And to this must be added, as an increased element in the expense of printing, the extra amount received by the workmen for night-work, equal to 10 per cent. on the wages paid.

Compositors are paid by the 1,000 for setting up the types; and by the hour for corrections: the complete arrangement of 10,000 types is considered an average day's work for one person. Tabular Statements, similar to the Priced Lists, are attended with extra trouble, and are paid double the price of other work; and works in Foreign languages a small increased price per 1,000. From the circumstance of all the types used for the Catalogues being new, the compositor had an advantage of about 10 per cent. on the day's work.

The hours of attendance are from 8 in the morning until 8 in the evening. When the men are employed during the night they receive extra payment, equivalent to 40 per cent. on their earnings.

To this branch of printing must be added readers and reading boys, in the proportion of one reader and one boy to each 12 compositors.

From the extraordinary number of proofs required during the progress of the Catalogues, four proof-pullers were constantly employed so long as the compositors were at work: 54 reams of paper, equal to 27,864 sheets, were consumed in proofs only.

There are two descriptions of machines employed in printing: the cylinder machine, attended by one man and two boys, producing on the average 7,000 impressions per day of 10½ hours; and the platten machine, managed by one man and four boys, averaging 4,000 impressions per day. The machinemen and boys are paid by day-work.

Pressmen are paid by the ream of 500 sheets, printed on both sides (or 1,000 impressions), the price varying according to the quality of the work required. Each press is worked by two men; and it is estimated that, on the usual description of printing, two men would produce 1,250 perfect copies of one sheet (or 2,500 impressions) per day. The Illustrated Catalogue was printed entirely at the hand-press, and required so great an amount of care, that 500 sheets, or 1,000 impressions, were scarcely obtained from the men in one day; and of the separate engravings, eight of which were printed on one sheet of paper, but 500 impressions were produced in a day; and, in addition to the men engaged in printing, four men were constantly employed in what is technically called "bringing up" the engravings on wood, preparatory to the printing.

To the Press and Machine Departments must be added persons to wet the paper before printing, and others to dry and press it after printing, and deliver to the binders. The average number of persons employed in "wetting" paper was equal to 6 men for 90 days.

TABLE IV. Showing the Number of Compositors employed on each Work from the Week ending 15th February to the Week ending 18th October, 1851; also the Average Number of Nights worked by the same Persons.

Week ending	Number of Compositors Employed on each Work.											Total Number of Compositors employed during the Day.	Average No. of Compositors employed during the Night.	Average No. of Nights.
	Illustrated Catalogue.	Small Official Catalogues.			Priced Lists.	Popular Guide, Plans, &c.	Index to Official Catalogue.	Synopsis.		Hunt's Hand-Book.	Jury Awards.			
		English.	French.	German.				English.	French.					
Feb. 15	17	-	-	-	-	-	-	-	-	-	-	17	-	-
22	17	-	-	-	-	-	-	-	-	-	-	17	-	-
Mar. 1	22	-	1	3	-	-	-	-	-	-	-	26	10	1
8	25	-	2	5	-	-	-	-	-	-	-	32	15	1
15	23	-	5	6	-	-	-	-	-	-	-	34	12	1
22	16	-	6	-	-	-	-	-	-	-	-	22	10	2
29	28	10	6	3	-	-	-	-	-	-	-	47	14	2
April 5	25	11	3	3	-	-	-	-	-	-	-	43	21	2
12	36	13	6	6	-	-	-	-	-	-	-	61	22	2
19	44	10	6	6	-	-	-	-	-	-	-	66	44	3
26	18	26	3	6	-	-	-	-	-	-	-	53	40	3
May 3	19	32	6	3	8	-	-	6	-	-	-	74	60	3
10	28	-	4	1	8	-	-	-	-	-	-	41	20	1
17	27	20	5	2	10	3	-	-	-	-	-	63	40	2
24	12	16	4	3	9	-	-	-	-	-	-	44	34	2
31	26	2	5	3	5	-	-	-	-	-	-	41	41	3
June 7	12	-	6	6	8	7	-	-	-	-	-	39	35	2
14	12	-	16	6	7	-	-	-	-	-	-	41	16	2
21	15	7	13	5	7	-	20	-	6	-	-	73	45	2
28	16	10	8	5	10	3	-	-	-	-	-	52	43	2
July 5	16	7	9	18	9	-	10	-	-	10	-	79	40	3
12	10	5	-	20	7	-	-	-	-	7	-	47	43	1
19	23	-	-	17	8	-	-	-	-	4	-	52	36	1
26	18	-	15	-	5	-	-	-	-	4	-	42	22	1
Aug. 2	14	-	7	-	7	3	-	-	-	3	-	34	20	1
9	35	5	10	-	12	-	-	-	-	7	-	69	26	1
16	25	-	4	-	8	-	-	-	-	4	-	41	24	1
23	27	-	-	-	-	-	-	-	-	6	-	53	-	-
30	30	-	-	-	-	-	-	-	-	3	-	36	-	-
Sept. 6	25	-	-	-	-	-	-	-	-	5	-	30	-	-
13	20	-	-	-	-	-	-	-	-	2	-	23	16	1
20	39	-	-	-	-	-	-	-	-	-	-	39	17	1
27	29	-	-	-	-	-	-	-	-	-	-	29	15	2
Oct. 4	16	-	-	-	-	-	-	-	-	-	-	16	14	2
11	19	-	-	-	-	-	-	-	-	-	-	19	17	1
18	7	-	-	-	-	-	-	-	-	-	41	48	40	2

TABLE V. Average Total Number of Persons Employed in Printing the Catalogues and other Works, and of the Average Time occupied.

TITLE OF WORK	COMPOSITORS.								No. of Copies Printed of each Work.	STEAM-MACHINES.				HAND-PRESSES.			Time required for Printing each Work, represented as One Day's Employment for	
	No. of Pages of Type.				Average No. of Persons Employed on each Work.	Average Time Occupied.		No. of Sheets of Type		Average No. of Machines required.	Average No. of Persons Employed		Average No. of Days Occupied.	Average No. of Presses required.	Average No. of persons Employed.	Average No. of Days Occupied.		
	In the Work.	Advertisements, Covers, &c.	Cancelled in Corrections.	Total No. of Pages set up		Days.	Nights				Men.	Boys.					Men.	Boys.
Small Official Catalogue—English	320	58	94	472	14	84	23	23½	290,000	15	15	30	42	-	-	-	2,253	1,385
Do. Do. French	328	22	146	496	7	130	13	22	10,000	12	12	24	6	1	2	8	1,174	229
Do. Do. German	308	20	62	390	6	120	19	20½	5,000	11	11	22	2	1	2	2	930	114
Synopsis of Contents of the Building	96	4	-	100	12	3	2	3¼	85,000	2	2	4	12	1	2	4	97	53
Do Do. French	96	4	-	100	8	4	3	3¼	4,500	2	2	4	2	1	2	1	67	13
Popular Guide	-	-	-	32	9	4	2	2	26,000	1	1	2	5	-	-	-	64	15
Index to Official Catalogue	232	4	-	236	16	18	5	14⅜	1,250	4	4	8	2	1	2	½	407	47
Priced Lists—British Section	20	4	-	24	8	96	8	11¼	750	6	6	12	2	1	2	4	922	94
Austrian	168	4	-	172				10¾	1,500									
Saxon	32	4	-	36				2¼	3,050									
Zollverein	156	4	-	160				10	1,500									
Wurtemburg	20	4	-	24				1½	580									
Russian	32	4	-	36				2¼	1,500									
Hunt's Hand-Book	960	4	-	964	5	72	12	30¼	2,650	2	10	20	10	1	2	2	559	235
Plans of the Building equal to—	-	-	-	24	3	18	-	1⅓	5,750	-	-	-	-	1	2	2	59	4
Key to the Catalogue	-	-	-	4	4	1	-	¾	5,500	-	-	-	-	1	2	2	9	-
Illustrated Catalogue	1,724	80	211	2,015	22	216	35	112¾	8,000	2	2	8	6	12	24	197*	11,573	523
Do. Do. (large paper)	-	-	-	-	3	60	-	225⅓	250	-	-	-	-	8	16	41		
Jury Awards	2,056	-	351	2,307	14	243	13	10¼	2,000	4	4	16	2	1	2	1	4,398	332
Reports by the Juries (large type)								257	250	-	-	-	-	12	24	15		
								128⅓	550	-	-	-	-	12	24	6		
Reports by the Juries (small type)	-	-	-	1,008	18	60	-	63	20,000	6	6	24	60	-	-	-	1,530	234
Report of Commissioners	268	2	24	294	10	60	-	33⅓	250	-	-	-	-	6	12	4	741	114
								16¼	2,500	4	4	16	4	-	-	-		

* Including 23 nights considered as days.

Comparative Power of Production of Hand-Presses and Steam-Machines.—Comparing the press and the cylinder machine, the size of the paper and the quality of the work being the same, the press will produce 1,250 copies and the machine 7,000 in the day, at about the same cost for labour; and comparing the press with the platten machine, the press will yield 1,000 copies, and the machine 4,000, at the same cost; the quality of the work always being in favour of the press.

This high rate of production, however, is only attainable where the number of copies required is large: where the numbers to be printed do not exceed 2,000, not more than one-half these quantities can be obtained on the average; and when less than 2,000 little advantage is gained by using the steam-machine.

The machines, however, have an advantage over the press in size, which doubles, and in the larger machines, trebles the quantity produced; while the press can only print 8 pages of the Catalogue at each impression, some of the machines printed 48 pages at one operation.

Taking the small Official Catalogue as an example:—290,000 complete copies were printed at 15 cylinder machines, in 42 days; it would have required 47 hand-presses 97 days to have produced the same result; or, while 15 machines, with 15 men and 30 boys, produced 7,000 copies of the Catalogue daily, 47 presses, and 94 men, could have produced but 3000.

The following Table exhibits the division of labour, and the Number of Persons actually engaged on the Catalogue during the week ending May 3, 1851, day and night; also the Average Number of Persons employed from the opening to the close of the Exhibition:—

	Day.		Night.		No. of Nights.	Average No. of Persons Employed from Feb. 15 to Oct. 18, 1851.			
	Men.	Boys.	Men.	Boys.		Men.	Boys.	Days.	Nights.
Compositors -	74	-	60	-	3	44	-	216	37
Readers - -	6	6	5	5	3	4	4	216	37
Proof-pullers -	3	-	3	-	3	4	-	216	37
Pressmen - -	24	-	24	-	3	28	-	174	43
Machine-men -	17	38	17	38	3	17	38	44	5
Wetters of Paper	6	-	6	-	5	2	-	216	30
Warehouse - -	2	6	3	6	3	3	8	216	2
	132	50	118	49		102	50		
	182		167			152			

The Total Number of Persons employed in the Sale of the Catalogues, &c., in the Exhibition Building, from May 1 to October 18, 1851, was 16; at the City Offices 6; Total 22.

Printing Ink.—The cost of this article forms no inconsiderable item in the expense of printing. The ink used for the Catalogues was manufactured by Messrs. Shackell and Edwards; the quantity required for the Small Catalogue amounting to nearly 4,000 lbs.; for the Illustrated Catalogue about 400 lbs.; and the entire quantity consumed on all the works printed for the Exhibition not less than 6,000 lbs. The ink for the Illustrated Catalogue is a fine specimen of black, made purposely for the printing of wood engravings. Printing ink varies much in price, according to the quality: that used for the Illustrated Catalogue is nearly four times the cost of the ink used for the Small Catalogue; but as a less quantity of the finer description is necessary to cover the same amount of surface, the comparative increase of price is somewhat reduced.

Engraving.—Three classes of artists are necessary for the production of an engraving—the designer; the artist who transfers the original drawing to the wood-block; and the actual engraver. The designer is usually considered the superior artist, although the elaborate workmanship exhibited on some of the engravings in the Illustrated Catalogue would make this point somewhat doubtful: two, three, and even four weeks having been occupied on a single illustration. Engraving is a profession followed by both sexes: many engravers are also designers; and where this is the case, the highest point of excellence exhibits itself in their productions.

Upwards of *six thousand pounds* have been expended on this department: it would be difficult to form more than an approximate estimate of the number of persons engaged, but as a Supplementary Volume is in the course of preparation,—probably not less than 200, from the commencement of 1851 to the present time.

Lithography. The art of printing from stone also contributed towards the embellishment of the Illustrated Catalogue. The Plan of the Building was lithographed in three colours, and employed a draughtsman 10 days to complete three stones: 96,417 impressions were therefore necessary to obtain 32,139 copies, and was equal to the work of 3 printers for 108 days: 22,167 of the Plans were mounted; this operation employed 6 persons 40 days.

The Prince of Wales' Shield occupied one draughtsman 9 days, and the Liverpool Model 6 days, in lithographing; and printing 9,000 copies of the former, and 11,000 of the latter, required 2 men 36 days.

The Kieff Bridge—a beautiful specimen of tinted lithography—employed the artist 14 days. To produce the desired effect, three stones were used; and as each impression was the result of three printings, 6,000 copies employed 3 men 24 days.

When the numbers to be printed are large, *transfers* to other stones can be made: and by this means, with the aid of additional presses, copies can be rapidly multiplied. This process, however, is only applicable to ink drawings, such as the Shield and Liverpool Model; but for chalk drawings, similar to the Kieff Bridge, scarcely practicable.

The entire impression of the Kieff Bridge, and the greater portion of the other lithographic illustrations, were executed by Messrs. Day & Son, and the remainder by Messrs. Standidge.

The coloured map of the Geographical View of the Great Exhibition, by Mr. Petermann, was engraved on stone (a process combining dispatch and excellence of execution); it was found necessary to refer to at least 150 different maps and books, in order to identify the various localities from whence the contributions to the Exhibition were supplied; and occupied 3 persons upwards of two months in compiling and engraving; printing 7,000 copies (and for which two printings were necessary) occupied 4 men 70 days; and the colouring, 6 persons about 50 days.

Hot-Pressing restores the fine gloss and smoothness that the paper originally possessed before printing; and which the wetting and the impression from the type destroys. After the printed sheets are thoroughly dried they are placed singly between highly glazed thin card-boards, called Pressing Papers, and at certain intervals a hot iron or zinc plate is introduced. When a sufficient quantity has been thus prepared, the *batch* (as it is technically termed) is placed in an hydraulic press of great power, for 8 or 10 hours. In cold pressing the only difference in the process is the use of cold instead of hot plates. The pressing of 6,000 reams employed 4 men and 4 boys for 75 days.

Binding. The services of 12 binders were retained to effect this last operation in the production of the small Official Catalogue; and, by the united efforts of not less than 500 persons, 20,000 copies were sewn and covered in the course of a few hours.

The binding of the Illustrated Catalogue was entrusted entirely to Messrs. Remnant, Edmonds, & Remnant, and the Messrs. Westleys & Co., in addition to the binding of a very large portion of the small Official Catalogues.

Presentation copies of the small Catalogue, and of the first Part of the Illustrated Catalogue, were also prepared for Her Majesty and H.R.H. Prince Albert, on the opening of the Exhibition. These books were elegantly bound, with gilt edges, by the Messrs. Westleys & Co., in the short space of six hours.

The division of labour in binding is great: the various processes are performed by men, women, and young persons of both sexes. To complete the small English, French, and German Catalogues—the Priced Lists—Index—and the English and French Synopsis—nine operations were necessary for each book; the binding of these various works gave employment to 20 men and 100 women for 80 days.

The Illustrated Catalogue required 17 operations to produce a complete volume; and binding the whole impression afforded occupation to 40 men and 90 women for about 48 days.

(Signed) W. Clowes & Sons.

May, 1852.

APPENDIX No. XXVIII.

RETURN showing the AMOUNT Expended by the VISITORS in REFRESHMENTS during each Day the EXHIBITION was open to the Public, as furnished by Messrs SCHWEPPE and Co., General Contractors; the Sub-Contractors being Messrs. YOUNGHUSBAND and THOMAS MASTERS.

Date.	Number of Visitors.	Price of Admission.	CENTRAL COURT. — Younghusband and Son.			EASTERN AND WESTERN COURTS. — Thomas Masters.			TOTAL.		
			£.	s.	d.	£.	s.	d.	£.	s.	d.
May 1	25,000	Season Tickets.	249	14	7	109	19	7	359	14	2
2*	16,560	£1	160	11	0	32	15	5	193	6	5
3†	16,482	£1	183	13	8	30	18	8	214	12	4
5	19,952	5/	209	16	11	57	0	10	266	17	9
6	20,334	5/	206	7	3	36	4	9	242	12	0
7	21,663	5/	224	5	1	89	5	11	313	11	0
8	22,572	5/	257	15	11	117	18	7	375	14	6
9*	21,798	5/	255	10	4	108	13	7	364	3	11
10†	21,875	5/	278	13	11	112	8	2	391	2	1
12	20,890	5/	212	15	5	82	4	0	294	19	5
13	23,418	5/	254	18	7	110	5	4	365	3	11
14	22,759	5/	254	14	1	99	0	4	353	14	5
15	24,204	5/	281	17	3	120	7	9	402	5	0
16*	24,726	5/	311	19	2	133	1	7	445	0	9
17†	24,389	5/	321	17	6	126	0	4	447	17	10
19	23,880	5/	289	4	3	117	17	11	407	2	2
20	27,943	5/	358	14	1	179	16	6	538	10	7
21	28,549	5/	366	14	7	191	10	8	558	5	3
22	29,690	5/	411	0	11	220	0	1	631	1	0
23*	30,882	5/	437	2	8	215	8	10	662	11	6
24†	34,812	5/	502	17	9	304	11	4	807	9	1
26	23,402	1/	178	18	5	120	18	7	299	17	0
27	31,957	1/	275	18	6	191	9	11	467	8	5
28	42,384	1/	385	0	4	265	8	4	650	8	8
29	52,518	1/	473	7	0	391	8	10	864	15	10
30*	34,716	2/6	213	18	1	280	19	4	494	17	5
31†	19,083	5/	481	6	1	70	4	0	551	10	1
June 2	46,581	1/	382	4	6	309	10	9	691	15	3
3	52,302	1/	423	4	0	374	11	3	797	15	3
4	54,016	1/	415	13	9	355	13	4	771	7	1
5	55,337	1/	409	15	4	334	5	6	744	0	10
6*	26,134	2/6	389	5	9	230	18	2	620	3	11
7†	12,986	5/	184	3	11	71	12	0	255	15	11
9	54,204	1/	269	10	5	360	15	2	630	5	7
10	49,697	1/	274	15	7	209	17	0	484	12	7
11	47,754	1/	314	5	5	242	9	0	556	14	5
12	48,318	1/	359	2	7	293	13	0	652	15	7
13*	24,520	2/6	342	13	3	180	2	10	522	16	1
14†	14,102	5/	198	5	0	78	5	11	276	10	11
16	62,769	1/	407	17	9	340	15	3	748	13	0
17	68,155	1/	438	16	6	396	5	2	835	1	8
18	62,663	1/	425	6	4	366	11	10	791	18	2
19	63,863	1/	472	1	3	437	11	1	909	12	4
20*	31,834	2/6	467	19	7	285	8	5	753	8	0
21†	12,732	5/	236	17	4	95	7	4	332	4	8
23	67,555	1/	338	12	11	308	8	6	647	1	5
24	68,394	1/	392	5	8	409	16	4	802	2	0
25	58,445	1/	371	13	4	369	13	4	741	6	8
26	57,781	1/	384	6	4	416	12	9	800	19	1
27*	29,033	2/6	475	7	2	363	10	0	838	17	2
28†	11,501	5/	216	19	2	91	3	10	308	3	0
30	52,879	1/	301	11	9	296	17	1	598	8	10
July 1	51,069	1/	338	13	4	321	4	11	659	18	3
2	49,399	1/	357	0	8	356	13	10	713	14	6
3	55,638	1/	340	15	5	319	2	7	659	18	0
4*	26,007	2/6	380	14	2	217	13	0	598	7	2
5†	11,747	5/	203	1	8	70	5	6	273	7	2

NOTE.—* denotes Fridays and † Saturdays.

Daily Amount Expended by the Visitors in Refreshments—*continued.*

Date.	Number of Visitors.	Price of Admission.	CENTRAL COURT.—Younghusband and Son.			EASTERN AND WESTERN COURTS.—Thomas Masters.			TOTAL.		
			£.	s.	d.	£.	s.	d.	£.	s.	d.
July 7	61,670	1/	299	18	5	321	18	1	621	16	6
8	65,962	1/	384	10	10	382	13	10	767	4	8
9	58,055	1/	338	1	8	311	14	0	649	15	8
10	61,492	1/	381	11	3	350	11	3	732	2	6
11*	30,067	2/6	408	12	7	258	5	9	666	18	4
12†	11,181	5/	175	14	2	71	6	0	247	0	2
14	62,694	1/	317	0	9	331	15	0	648	15	9
15	74,122	1/	413	18	0	437	2	3	851	0	3
16	60,626	1/	337	7	10	321	6	6	658	14	4
17	63,746	1/	392	11	2	374	3	10	766	15	0
18*	35,338	2/6	505	7	0	338	6	2	843	13	2
19†	9,327	5/	148	1	3	50	11	7	198	12	10
21	70,640	1/	335	8	11	344	2	2	679	11	1
22	68,161	1/	367	15	3	353	14	9	721	10	0
23	50,599	1/	332	19	6	285	3	10	618	3	4
24	47,458	1/	336	8	0	261	5	10	597	13	10
25*	26,882	2/6	422	8	11	224	19	3	647	8	2
26†	10,399	5/	160	2	0	40	1	6	200	3	6
28	67,170	1/	298	8	10	277	1	7	575	10	5
29	69,036	1/	357	8	2	339	7	3	696	15	5
30	58,382	1/	335	16	2	304	13	11	640	10	1
31	57,309	1/	333	7	8	289	13	6	623	1	2
Aug. 1*	26,897	2/6	440	8	0	251	13	8	692	1	8
2†	9,725	5/	157	1	7	53	13	7	210	15	2
4	62,631	1/	300	16	0	303	6	1	604	2	1
5	68,069	1/	303	5	1	331	5	0	634	5	6
6	59,139	1/	295	19	5	283	4	6	579	3	11
7	60,118	1/	337	2	9	312	16	10	649	19	7
8*	18,466	2/6	311	13	3	152	18	0	464	11	3
9†	18,348	2/6	256	6	3	109	6	0	365	12	3
11	58,634	1/	289	16	3	266	0	6	555	16	9
12	58,554	1/	313	1	7	307	6	11	620	8	6
13	47,817	1/	305	13	7	268	0	3	573	13	10
14	49,452	1/	279	15	7	239	10	11	519	6	6
15*	20,861	2/6	330	0	4	166	15	9	496	16	1
16†	16,741	2/6	243	11	2	96	11	0	340	2	2
18	51,525	1/	249	15	10	214	17	1	464	12	11
19	57,079	1/	279	12	5	240	5	11	519	18	4
20	44,567	1/	271	18	6	230	12	1	502	10	7
21	50,482	1/	299	5	4	262	7	10	561	13	2
22*	17,978	2/6	305	12	10	155	10	4	461	3	2
23†	14,908	2/6	228	11	6	86	15	3	315	6	9
25	49,021	1/	232	5	6	199	15	7	432	1	1
26	51,311	1/	256	7	8	212	16	7	469	4	3
27	38,228	1/	220	2	7	173	14	4	393	16	11
28	44,245	1/	258	19	9	183	16	6	442	16	3
29*	15,590	2/6	200	18	2	96	17	10	297	16	0
30†	13,052	2/6	161	2	4	69	2	4	230	4	8
Sept. 1	50,234	1/	244	6	5	207	10	7	451	17	0
2	49,866	1/	272	11	2	223	0	4	495	11	6
3	41,917	1/	252	17	3	184	8	5	437	5	8
4	44,209	1/	269	13	1	202	14	8	472	7	9
5*	15,726	2/6	204	9	9	97	0	0	301	9	9
6†	12,672	2/6	155	6	2	63	10	4	218	16	6
8	56,852	1/	233	10	1	177	3	6	410	13	7
9	58,015	1/	275	5	4	235	18	7	511	3	11
10	50,106	1/	280	9	2	194	7	11	474	17	1
11	54,827	1/	285	4	4	220	9	0	505	13	4
12†	17,959	2/6	242	14	1	121	16	7	364	10	8
13*	16,273	2/6	200	19	2	76	15	8	277	14	10
15	60,497	1/	241	11	0	194	9	4	436	0	4
16	62,622	1/	283	11	3	228	10	8	512	1	11
17	53,757	1/	273	1	2	201	3	4	474	4	6
18	58,600	1/	298	2	5	223	19	8	522	2	1
19*	21,488	2/6	283	8	1	144	1	1	427	9	2

NOTE.—* denotes Fridays and † Saturdays.

Daily Amount Expended by the Visitors in Refreshments—*continued.*

Date.	Number of Visitors.	Price of Admission.	Central Court. — Younghusband and Son.			Eastern and Western Courts. — Thomas Masters.			Total.		
			£.	s.	d.	£.	s.	d.	£.	s.	d.
Sept. 20†	17,366	2/6	211	7	4	84	16	8	296	4	0
22	59,364	1/	228	1	0	174	2	6	402	3	6
23	60,382	1/	262	16	10	211	5	9	474	2	7
24	54,540	1/	260	8	6	195	0	0	455	8	6
25	57,161	1/	293	19	2	205	3	0	499	2	2
26*	23,694	2/6	290	12	10	139	5	9	429	18	7
27†	20,236	2/6	224	10	11	90	3	10	314	14	9
29	68,542	1/	247	17	7	193	9	0	441	6	7
30	69,346	1/	304	12	11	231	7	0	535	19	11
Oct. 1	59,071	1/	283	5	11	208	2	9	491	8	8
2	64,298	1/	307	13	5	229	11	9	537	5	2
3*	32,051	2/6	300	7	11	212	3	2	512	11	1
4†	30,640	2/6	352	8	0	158	9	3	510	17	3
6	107,815	1/	269	19	4	267	5	0	537	4	4
7	109,915	1/	381	15	6	328	2	0	709	17	6
8	109,760	1/	371	18	4	309	10	3	681	8	7
9	90,813	1/	331	18	6	262	10	1	594	8	7
10*	46,913	2/6	514	5	4	309	11	2	823	16	6
11†	53,061	2/6	487	11	10	287	3	0	774	14	10
13	Exhibitors and their friends only.	- -	280	0	6	106	7	10	386	8	4
14		- -	355	8	2	155	9	11	510	18	1
15		- -	239	17	6	70	15	11	310	13	5
Total - -	6,039,135	- -	44,161	12	0	31.396	3	0	75,557	15	0

Note.—* denotes Fridays and † Saturdays.

SUMMARY OF EACH MONTH.

May - -	706,438	- -	8,038	13	4	3,925	19	2	11,964	12	6
June - -	1,134,555	- -	8,892	14	7	7,219	14	10	16,112	9	5
July - -	1,314,176	- -	9,003	3	7	7,554	17	8	16,558	1	3
August -	1,023,438	- -	7,129	3	3	5,268	16	1	12,397	19	4
September	1,156,251	- -	6,621	7	0	4,521	13	2	11,143	0	2
October, to the 15th	704,337	- -	4,476	10	3	2,905	2	1	7,381	12	4
	6,039,195	- -	44,161	12	0	31,396	3	0	75,557	15	0

SUMMARY SHOWING THE EXPENDITURE BY EACH CLASS OF VISITORS.

Price of Admission.	Number of Visitors.	Amount Received for Refreshments.			Average for each Day.			Average for each Person.
		£.	s.	d.	£.	s.	d.	d.
5*s.* and upwards - - - -	625,161	11,489	18	6	370	12	10	4·4 per head.
2*s.* 6*d.* - - - - - -	735,451	14,903	1	4	496	15	4	4·8 ,,
1*s.* - - - - - - -	4,678,583	47,956	15	5	599	9	2	2·4 ,,
	6,039,195	74,349	15	3	- -			General average about 3*d.* per head.
Add three days' free admission to Exhibitors and friends -	- -	1,207	19	9				
		75,557	15	0				

(Signed) Schweppe & Co.,
Contractors.

APPENDIX No. XXIX.

RETURN showing the Quantity of PROVISIONS of each kind reported to have been consumed in the REFRESHMENT COURTS during the whole time of the EXHIBITION.

Description of Provisions.		YOUNGHUSBAND AND SON.	THOMAS MASTERS.	Total.
		Central Refreshment Court.	Eastern and Western Refreshment Courts.	
Bread - - - -	quarterns	24,536	27,558	52,094
,, Cottage Loaves - - -		57,528	3,170	60,698
,, French Rolls - - - -		7,617	-	7,617
Pound Cakes - - - - -		28,828	39,600	68,428
,, ,, at 3*d*. - - - -		36,950	-	36,950
Savory Cakes - - - - -		20,415	-	20,415
,, Pies - - - -	lbs.	-	33,456	33,456 lbs.
,, Patties - - -	lbs.	-	23,040	23,040 lbs.
Italian Cakes - - - - -		2,197	9,600	11,797
Biscuits - - - -	lbs.	33,722	3,600	-
Bath Buns - - - - - -		311,731	622,960	934,691
Plain Buns - - - - - -		460,667	409,360	870,027
Banbury Cakes - - - - -		34,070	-	34,070
Sausage Rolls - - - - -		-	28,046	28,046
Victoria Biscuits - - - -		-	73,280	73,280
Macaroons - - - -	lbs.	-	1,500	1,500 lbs.
Rich Cakes - - - -	lbs.	-	2,280	2,280 lbs.
Pastry at 2*d*. - - - - -		-	36,000	36,000
School Cakes - - - - -		-	4,800	4,800
Preserved Cherries, &c. -	lbs.	-	4,840	4,840 lbs.
Pine Apples - - - - -		-	2,000	2,000
Pickles - - - - -	gallons*	1,046	-	1,046 gallons.
Meat - - - - -	tons*	113	-	113 tons.
Potted Meat, Tongues, &c.	lbs.	-	36,130	36,130 lbs.
Hams - - - - -	tons	19	14	33 tons.
Potatoes - - - -	tons*	36	-	36 tons.
Mustard - - - -	lbs.	-	1,120	1,120 lbs.
Jellies - - - - -	quarts	-	2,400	2,400 quarts.
Coffee - - - - -	lbs.	9,181	5,118	14,299 lbs.
Tea - - - - -	lbs.	-	1,015	1,015 lbs.
Chocolate - - - -	lbs.	3,783	1,053	4,836 lbs.
Milk - - - - -	quarts	17,257	16,175	33,432 quarts.
Cream - - - - -	quarts	14,047	18,002	32,049 quarts.
Schweppe's Soda Water, Lemonade, and Ginger Beer	bottles	536,617	555,720	1,092,337 bottles.
Masters' Pear Syrup - -	bottles	-	5,350	5,350 bottles.
Rough Ice - - - -	tons	180	183	363 tons.
Salt - - - - -	tons	16	21	37 tons.

* Consumed in Exhibitors' Refreshment Rooms.

J. SCHWEPPE & CO., *Contractors.*

APPENDIX No. XXX.

REPORT upon the EXPENSE, RECEIPTS, and other Particulars connected with the WAITING-ROOMS and WASHING-PLACES in the EXHIBITION BUILDING.

	£.	s.	d.
The total amount expended in constructing and fitting-up the Water-closets and Washing-places was about - - -	1,500	0	0
Furniture, about - - - - - - - - - - -	100	0	0
Total, about - -	£1,600	0	0

The Waiting-rooms were situated near the Refreshment-courts, those in the Transept being most frequented; the price was made higher, in order to induce the public to go to those which were not so central. No difference was made in the mode of fitting them up, or in the attendance. The Urinals for gentlemen were not charged for; 54 of the latter were provided. It would have been convenient if more accommodation had been provided in the Ladies Waiting-rooms, especially in the Transept.

The following was the number of Waiting-rooms provided for each locality:—

	Gentlemen.	Ladies.	Total.	Charge.
Transept - - - - - -	6	24	30	1*d.*
Eastern Refreshment-court -	6	11	17	½*d.*
Western ,,	10	12	22	½*d.*
Total - - - -	22	47	69	

WAITING-ROOMS.

The current expenditure was as follows:—

	£.	s.	d.
Proportion of expense of Superintendence - - - - - -	76	18	9
6 male attendants - - - - - - - - - - -	188	0	0
10 female ,, - - - - - - - - - - -	204	10	0
Repairs - - - - - - - - - - - -	92	15	6
Sundries - - - - - - - - - - - -	109	13	0
Total - - - - - -	£671	17	3

	£.	s.	d.
The current receipts for Waiting-rooms for each day are given in Appendix XXXIII., and amount to - - - - - -	2,441	15	9
Excess of receipts over ordinary expenditure - - -	£1,769	18	6

WASHING-PLACES

	£.	s.	d.
Proportion of expense of Superintendence - - - - - -	8	10	11
3 Male attendants - - - - - - - - - - -	87	0	0
Female - - - - - - - - - - - - -	61	7	0
Soap 532 lbs. - - - - - - - - - - - -	15	15	0
Towels - - - - - - - - - - - - -	34	2	0
Washing towels - - - - - - - - - - -	73	0	9
Miscellaneous - - - - - - - - - - -	1	9	0
Total expenditure - - - - - -	281	4	8
Deduct value of towels, &c. - - - -	8	10	0
	£272	14	
The receipts, as shown in detail for each day in Appendix XXXIII., amounted to - - - - - - - - - -	443	17	
Excess of receipts over expenditure - - - - - - - -	£171	2	10

(Signed) L. L. BOSCAWEN IBBETSON.

From the annexed table it will appear that the largest receipt from the Waiting-rooms on any one day was on the 8th October, and amounted to 32*l.* 16*s.* 3*d.*; on which day, 11,171 persons made use of the Waiting-rooms. The number of visitors was on the same day 109,760.

On that day each of the 1*d.* Waiting-rooms must have been used by 229 persons, and the ½*d.* by 169 persons, during the eight hours the building was open to the public.

It will appear also from the same table that 827,820 persons paid for the use of these conveniences during the time of the Exhibition, or 14 per cent. of the visitors, in addition to an equal if not larger proportion of gentlemen who made use of the urinals, of which no account was kept. No apology is needed for publishing these facts, which, throughout the whole time of the Exhibition, strongly impressed all concerned in the management with the necessity of making similar provisions for the public wherever large numbers are congregated, and with the sufferings which must be endured by all, but more especially by females, as the figures in the table will testify, on account of the want of them.

These statements will also show that in England, as well as in France, such establishments may be made perfectly remunerative.

H. C. O.

RETURN showing the use made by the Public of the WAITING-ROOMS and WASHING-ROOMS in the EXHIBITION BUILDING.

—			Number of each Description.	Number of Days Open.	DURING THE WHOLE PERIOD OF EXHIBITION.						DAY OF GREATEST RECEIPT FROM THESE SOURCES.*			
					Total.		Average for each Day.		Daily Average for each Waiting-room.		Total during the Day.		Average for each Waiting-room.	
					Receipts.	Number of Persons.	Receipts.	Number of Persons.	Receipts.	Number of Persons.	Receipts.	Number of Persons.	Receipts	Number of Persons.
					£. s. d.		£. s. d.		£. s. d.		£. s. d.		£. s. d.	
WAITING ROOMS.	LADIES	At 1*d.*, from May 3 to 31	12		136 13 3	32,799	5 9 9	1,312	0 9 11	119				
		At 1*d.*, from June 1 to October 11	24		1,096 5 11	263,111	9 9 0	2,268	0 7 10	94	17 1 4	4,096	0 14 3	171
		At ½*d.*	23		851 5 9	408,618	5 19 1	1,858	0 5 2	124	12 1 8	5,800	0 10 6	252
		Total	47	-	2,084 4 11	704,528	-	-	-	-	29 3 0	9,896		
	GENTLEMEN	At 1*d.*	6		201 7 4	48,328	1 8 2	338	0 4 8	56	2 0 3	483	0 6 8	80
		At ½*d.*	16		156 3 6	74,964	1 1 10	524	0 1 4	32	1 13 0	792	0 2 0	48
		Total	22	-	357 10 10	123,292	-	-	-	-	3 13 3	1,275		
	TOTAL, LADIES & GENTLEMEN	At 1*d.*	30		1,434 6 6	344,238	10 0 7	2,407	0 10 7	127	19 1 7	4,579	0 19 1	229
		At ½*d.*	39		1,007 9 3	483,582	7 0 10	3,380	0 3 7	86	13 14 8	6,592	0 7 0	169
		Total	69	-	2,441 15 9	827,820	-	-	-	-	32 16 3	11,171		
WASHING PLACES		At 2*d.*	-		234 1 10	28,091	1 16 10	121	-	-	3 7 5	405		
		At 1*d.*	-		209 15 8	50,348	1 13 0	396	-	-	3 14 11	899		
		Total	-	-	443 17 6	78,439	-	-	-	-	7 2 4	1,304		

* For the Waiting-rooms, this was the 8th October, on which day the total number of visitors, exclusive of staff, was 109,760; for the Washing-places, it was the 19th June, on which day the number of visitors was 63,863.

From the General Return of Receipts, at pages 157–58, it appears that the use of the Washing-places fell off as the weather got colder. H. C. O.

APPENDIX No. XXXI.

The General Account of the Receipts and Expenditure of the Royal Commissioners for the Exhibition of the Works of Industry of All Nations, 1851, from the 29th August 1849, to the 29th February 1852.

Dr.

	£.	s.	d.
To amount advanced by the Contractors, Messrs. Munday, repaid to them November 22, 1850	22,500	0	0
To amount advanced by the Bank of England on Guarantee, repaid to the Bank May 22, 1851	32,500	0	0
Subscriptions	67,896	12	9
Catalogue Contract	3,200	0	0
Refreshment Contract	5,500	0	0
Season Tickets	67,514	1	0
Receipts at the Doors	356,278	3	7
Receipts from Retiring-rooms, Washing-places, taking charge of Umbrellas, &c., profit on Sale of Medals struck in the Building, and Weather Charts	4,580	3	8
Interest and Premium on Exchequer Bills	897	17	4
Received for Plans and Specifications of Building	189	0	0
Proceeds of Sale of Furniture, Implements, &c.	88	5	10
Sundry Receipts	99	3	9
£	561,243	7	11

Cr.

	£.	s.	d.
By the several Payments made during the whole period for Services connected with the Exhibition, according to the Monthly Abstracts, Accounts, and Vouchers herewith submitted, that is to say—			
Account for period of the Contract to 31st January 1850	2,032	8	7½
Abstract for—			
February 1850	440	12	1
March	901	4	4½
April	1,444	7	5
May	1,049	7	8
June	1,761	6	0
July	1,687	7	11
August	1,937	1	10
September	716	12	3
October	1,517	8	11
November	34,241	18	8
December	18,298	17	7
January 1851	21,541	12	7
February	16,622	17	2
March	13,975	15	11
April	22,993	16	10
May	43,908	7	2
June	14,918	8	1
July	20,134	2	0
August	14,150	9	5
September	3,797	6	7
October	28,094	19	5
November	52,269	1	5
December	18,741	16	5
January 1852	6,773	13	3
February	3,986	12	8
	347,937	12	3
Balance, viz.— In Treasurers' hands £209,098 1 0 Financial Officer 4,207 14 8	213,305	15	8
£	561,243	7	11

We certify that the accounts of the Receipts and Expenditure of the Royal Commissioners for the Exhibition of 1851 have been submitted to us for our examination for the period commencing 29th August 1849, and ending 29th February 1852, and that we have found the account of the Receipts to be £561,243 7*s.* 11*d.*, and the Expenditure, for which vouchers have been produced to us, £347,937 12*s.* 3*d.*, the balance on 29th February 1852 being £213,305 15*s.* 8*d.* of which £209,098 1*s.* was in the hands of the Treasurers, and £4,207 14*s.* 8*d.* in the hands of the Financial Officer.

Thomson Hankey, Jun.,
Governor, Bank of England.
F. G. Hubbard,
Deputy-Governor.

Bank of England,
24th April 1852.

We certify that the above balance of Two hundred and nine thousand and ninety-eight pounds one shilling stated to be in our hands is correct, £185,738 18*s.* 9*d.* being invested in £180,000 Exchequer Bills, and £23,359 2*s.* 3*d.* to our credit at the Bank of England.

Arthur Kett Barclay,
William Cotton,
J. W. Lubbock, *Treasurers.*
S. M. Peto,
Lionel Rothschild.

March 1, 1852.

F. S. Carpenter, *Financial Officer.*

APPENDIX No. XXXII.

Analysis of Receipts and Expenditure to 29th February 1852, arranged under the various Departments of the Exhibition.

Receipts.	£.	s.	d.	Payments.	£.	s.	d.	£.	s.	d.
Subscriptions	67,896	12	9	A. Personal services	67,309	11	7			
Catalogue Contract	3,200	0	0	Extra clerks from law stationers	735	4	10			
Refreshment Contract	5,500	0	0	Metropolitan Police	19,647	17	9			
Season Tickets	67,514	1	0	Gratuities to ditto	2,710	0	0			
Receipts at the doors	356,278	3	7	Travelling Expenses	973	12	4			
Receipts from Retiring Rooms, Washing Places, taking charge of Umbrellas, &c.; profit on sale of Medals struck in the Building, and Weather Charts	4,580	3	8	Sundry Expenses of Local Committees	247	0	0			
				B. General Office Expenses	8,869	1	11			
				C. Building and Fittings	169,998	15	2			
Interest and Premium on Exchequer Bills	897	17	4	D. General Maintenance of Exhibition	4,877	19	7			
Plans and Specifications of Building, as shown in Appendix XXXI. £189 0 0 Less returned 84 0 0	105	0	0	E. Jury Department	6,916	10	8			
				Law Expenses incurred in drawing up Contract with Messrs. Munday, Guarantee, Prosecutions for Fraud, and Fees and Stamp Duties on Charters	2,106	7	1			
From sale of Furniture, Tools, &c.	88	5	10	Messrs. Munday's Award and Costs	5,707	1	4			
Sundry Receipts, as shown in Appendix XXXI. 99 3 9 Less advances repaid 59 1 0	40	2	9	Interest to Messrs. Munday on Advances	1,203	18	7			
				Interest to Bank of England on Advances	538	12	6			
				Contingencies	952	17	11			
N.B.—The sums temporarily advanced by Messrs. Munday and the Bank of England, amounting to £22,500 and £32,500 respectively, as shown in Appendix XXXI, are excluded from both sides of this Analysis, having been repaid.				Total Expenditure				292,794	11	3
				Balance	- -			213,305	15	8
Total Net Receipts	506,100	6	11					506,100	6	11

March 1, 1852.

F. S. Carpenter,
Financial Officer.

A. Personal Services.—Return of the Amount of Remuneration paid by the Royal Commission from October 1849 to the 29th of February 1852, chargeable to the various Departments of the Exhibition.

	£.	£.
Royal Commission.		
3 Secretaries	3,000	
2 Clerks	100	
1 Messenger	25	
		3,125
The Executive Committee.*		
1 Member (*from July* 1849)	3,692	
1 Ditto	800	
1 Ditto	400	
Secretary, until transferred to the Building Committee	350	
		5,242
Building.		
Designer	5,000	
Professional Assistance from three Members of the Building Committee who were not Members of the Royal Commission	1,500	
Professional Assistance employed under the Chairman of the Building Committee, in the actual erection of the Building:—		
1 Superintending Architect	1,967	
1 Superintendent for Decoration	1,392	
1 Superintendent of Engineering Details	737	
Clerks of Works	182	
Sappers and Miners	128	
Messengers, &c.	100	
		11,006
Staff of the Executive Committee.		
Correspondence and General Office Duties—		
19 Clerks, various periods	1,627	
Sappers and Miners	425	
Messengers and Doorkeepers, &c.	410	
		2,462
Organization of Local Committees—		
2 Special Commissioners		
Remuneration and Travelling Expenses of 23 other persons		
		5,011
Computation of British Space—		
4 persons superintending		
14 Clerks and others		
Sappers and Miners		
Other assistance—Messengers, &c.		
		1,544
Reception of Goods—		
2 Superintendents	284	
11 Clerks and others	297	
Sappers and Miners	640	
Porters	1,545	
Doorkeepers, &c.	106	
		2,872
Arrangement—		
Scientific Advice (8 persons)	2,876	
10 other Superintendents	864	
12 Deputy Superintendents	372	
Clerks	67	
Sappers and Miners	174	
Messengers and Boys	100	
Doorkeepers	100	
Sweepers	100	
Other assistance	69	
		4,722
Maintenance of Exhibition subsequent to the Opening—		
1 Superintendent	313	
1 ditto of Machinery	317	
1 ditto of Textile Fabrics	63	
11 District Superintendents	837	
15 Deputy Superintendents	432	
Clerks	148	
Sappers and Miners	1,171	
Messengers	50	
Classmen or Attendants	1,990	
Sweepers	749	
1 Superintendent of Waiting-Rooms	100	
Attendants in Waiting-Rooms, Doorkeepers, &c.	775	
Miscellaneous	91	
		7,036
Removal of Goods—		
2 Superintendents	245	
8 District ditto	260	
10 Deputy ditto	60	
10 Clerks	101	
Sappers and Miners	344	
Porters	800	
Doorkeepers	120	
Classmen	350	
Sweepers	100	
		2,380
Fire Arrangements—		
Superintendent	100	
Sappers and Miners	282	
London Fire Brigade	524	
Boys removing Shavings from under Floor	64	
		970
Finance and Admission Department—		
Financial Officer	1,563	
6 Clerks	449	
4 Superintendents of Admittance	206	
Moneytakers and Collectors	807	
Clerks at Bank of England	57	
Doorkeepers	150	
Season-Ticket Inspectors	366	
Umbrella-takers	155	
Messengers, Boys, &c.	200	
Admission of Exhibitors. 6 Clerks	311	
Doorkeepers	55	
Sappers and Miners	31	
		4,350
Registration of Designs—		
Superintendent	250	
Clerks	54	
		304
Arrangements for Working Classes		350
Trade Collection, Computation of Value, Trade Circulars, &c.—		
6 Clerks and others	165	
Messengers, Cleaners, &c.	114	
Sappers and Miners	111	
		390

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* Mr. Dilke declined receiving any salary or other remuneration.—Sir William Reid and the officers of the Royal Engineers declined receiving any remuneration beyond their usual military pay, which was continued to them by the Board of Ordnance under sanction of the Treasury.

Juries.	£.	£.
Special Commissioner in charge	1,864	
4 Deputies - - - -	1,772	
Professional Assistance - -	200	
Interpreter - - - -	200	
13 Clerks - - - - -	683	
Messengers, &c. - - -	124	
		4,843
Photographs for Presentation —		
2 Superintendents - -	-	226
Electric Telegraph Company -	-	87

Gratuities to the working staff of Foreign Commissioners, in consideration of the assistance rendered by them in the general business of the Exhibition, including presents of Plate to those who declined receiving such gratuity - - -	9,641
Miscellaneous - - - - -	748
Total - -	67,309

[The division of the remuneration among the different departments can only be considered as approximate.]

B. Office Expenses.

	£.	s.	d.	£.		d.
Rent of Office, Rates, &c. -	1,261	16	3			
Office Furniture - - -	564	12	6			
Stationery - - - -	1,199	4	7			
Printing and Lithography	3,694	11	0			
Advertising - - - -	662	16	9			
Postage and Parcels - -	1,486	0	10			
				8,869	1	11

C. Building and Fittings.

	£.	s.	d.	£.	s.	d.
Original Contract with Messrs. Fox and Henderson - - - -	79,800	0				
Subsidiary Contracts and Works to complete Building - - -	27,980	7				
Sundry Works, Fittings, Tackle, Platform, and Labour in receiving and returning heavy Goods - - - - - -	19,648	0	8			
	127,428	8	2			
Sum unpaid - - - - - - - - - - - -	4,112	16	7			
	123,315	11	7			
Add Sum paid for reasons stated at p. xxx. of Report - - -	35,000	0	0			
	158,315	11	7			
Fittings, Repairs, and Arrangement, executed by sundry Persons -	3,801	6	10			
Turnstiles and Entrances - - - - - - - - - - -	1,568	17	6			
Flags on Building - - - - - - - - - - -	251	6	9			
Iron Gates at Hyde Park Corner - - - - - - - -	173	0	0			
Boilers, Steam Pipes, &c. - - - - - - - - - -	4,789	14	10			
Preliminary Expenses of Building Committee in drawing Plans, Surveys, &c. - - - - - - - - - - - -	1,098	17	8			
				169,998	15	2

D. General Maintenance of Exhibition.

	£.	s.	d.	£.	s.	d.
Coals, &c., for Boilers - - - - - - - - - - -	950	15	11			
Gas, Lighting, &c. - - - - - - - - - - -	1,575	19	4			
Water Supply - - - - - - - - - - - -	503	3	0			
Watering Roads - - - - - - - - - - - -	281	17	6			
Waiting-rooms, &c. - - - - - - - - - - -	373	3	11			
Implements and Tools - - - - - - - - - -	768	1	6			
Accidents and Repairs - - - - - - - - - -	424	18	5			
				4,877	19	7

E. Jury Department.

	£.	s.	d.	£.	s.	d.
Money Awards - - - - - - - - - - - - -	390	0	0			
Paid on account of Medals - - - - - - - - - -	3,550	0	0			
,, Medal Cases - - - - - - - - -	386	9	8			
,, Certificates - - - - - - - - -	457	10	0			
,, Photographs, Jury Reports, &c., for presentation	841	9	5			
,, printing Jury Reports - - - - - - -	348	11	6			
Expenses of Jury Trials of Agricultural and other Machinery - -	942	10	1			
				6,916	10	8

APPENDIX No. XXXIII.

RETURN showing the RECEIPTS from all SOURCES on each Day during the EXHIBITION.

DATE.	DAY OF THE WEEK.	SALE OF SEASON TICKETS.	RECEIPTS AT THE DOORS.			RETIRING ROOMS.	WASHING PLACES.	TAKING CHARGE OF UMBRELLAS, &c.	PROFIT ON SALE OF MEDALS.
			Entrance Fee.	AMOUNT.	TOTAL EACH WEEK.				
		£. s.		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d
May 1	Thur.	52,885 6*	..	–		0 1 6	– –	– –	– –
2	Frid.	1,378 13	£1	560 0 0		0 12 0	– –	– –	– –
3	Sat.	1,054 4	£1	482 0 0		3 1 3¼	– –	– –	– –
					1,042 0 0				
5	Mon.	743 8	5/	1,362 19 0		4 16 3	– Not in operation until May 21. –	– –	– –
6	Tues.	880 19	5/	1,458 10 0		5 6 0	– –	– –	– –
7	Wed.	931 7	5/	1,790 15 0		5 7 6½	– –	– –	– –
8	Thur.	910 7	5/	2,018 0 0		5 16 7½	– –	– –	– –
9	Frid.	880 19	5/	1,824 10 0		5 18 7	– –	– –	– –
10	Sat.	858 18	5/	1,843 15 0		4 19 2½	– –	– –	– –
					10,298 9 0				
12	Mon.	749 14	5/	1,597 10 0		6 0 11½	– –	– –	– –
13	Tues.	895 13	5/	2,229 10 0		7 3 7½	– –	– –	– –
14	Wed.	591 3	5/	2,064 15 0		7 14 4½	– –	– –	– None ready for sale previous to June 24. –
15	Thur.	682 10	5/	2,426 0 0		8 8 10	– –	– –	– –
16	Frid.	676 4	5/	2,556 10 0		8 9 11½	– –	– Not in operation until June 11. –	– –
17	Sat.	557 11	5/	2,472 5 0		8 1 6	– –	– –	– –
					13,346 10 0				
19	Mon.	488 5	5/	2,345 0 0		8 18 0	– –	– –	– –
20	Tues.	350 14	5/	3,360 15 0		10 16 9	– –	– –	– –
21	Wed.	279 6	5/	3,512 5 0		11 7 8½	0 4 4½	– –	– –
22	Thur.	175 7	5/	3,797 11 0		10 16 9	0 15 0½	– –	– –
23	Frid.	134 8	5/	4,095 10 0		12 14 9	0 11 1	– –	– –
24	Sat.	155 8	5/	5,078 0 0		13 12 11½	1 13 8	– –	– –
					22,189 1 0				
26	Mon.	39 18	1/	970 2 0		7 2 8½	1 0 8	– –	– –
27	Tues.	19 19	1/	1,347 17 0		13 7 9½	1 5 8½	– –	– –
28	Wed.	13 13	1/	1,869 4 0		16 0 7½	2 7 4	– –	– –
29	Thur.	22 1	1/	2,375 18 0		18 16 8	4 3 5	– –	– –
30	Frid.	61 19	2/6	2,839 9 0		15 16 1	3 4 5	– –	– –
31	Sat.	96 12	5/	1,770 15 0		6 11 8½	1 4 10	– –	– –
					11,123 5 0				
June 2	Mon.	13 13	1/	2,129 1 0		17 11 0½	4 1 1	– –	– –
3	Tues.	10 10	1/	2,415 2 0		19 12 1½	5 7 11½	– –	– –
4	Wed.	18 18	1/	2,500 16 0		23 8 2	2 18 2	– –	– –
5	Thur.	18 18	1/	2,566 17 0		27 1 5½	3 4 10½	– –	– –
6	Frid.	32 11	2/6	2,558 11 0		15 1 10½	2 17 0	– –	– –
7	Sat.	36 15	5/	1,523 15 0		5 5 5	1 3 3	– –	– –
					13,694 2 0				
9	Mon.	2 2	1/	2,436 4 0		19 3 10½	2 8 3	– –	– –
10	Tues.	9 9	1/	2,272 2 0		21 5 4	1 16 7	– –	– –
11	Wed.	4 4	1/	2,160 19 0		20 6 10½	3 2 10	1 1 3	– –
12	Thur.	15 15	1/	2,233 7 0		20 19 0½	4 9 6	7 12 10	– –
13	Frid.	39 18	2/6	2,206 5 0		12 9 2	2 16 5	8 15 4	– –
14	Sat.	35 14	5/	1,634 17 0		5 7 4	1 4 0	3 4 7	– –
					12,943 14 0				
16	Mon.	11 11	1/	2,854 9 0		23 12 5	5 15 6	11 10 10	– –
17	Tues.	11 11	1/	3,191 2 0		27 17 1½	5 6 2	4 8 1	– –
18	Wed.	19 19	1/	2,897 7 0		28 12 9½	5 3 0	9 15 10½	– –
19	Thur.	11 11	1/	2,984 12 0		25 19 7	7 2 4	6 1 4	– –
20	Frid.	36 15	2/6	2,819 4 6		14 1 4	4 3 5	2 16 10	– –
21	Sat.	33 12	5/	1,674 10 0		3 19 2	2 3 2½	0 9 0	– –
					16,421 4 6				

* This amount includes the proceeds of the sale of Season Tickets, from Feb. 27th to May 1st inclusive.

APPENDIX No. XXXIII.

Return showing the Receipts from all Sources for each Day during the Exhibition—*continued.*

Date.	Day of the Week.	Sale of Season Tickets.	Receipts at the Doors.			Retiring Rooms.	Washing Places.	Taking Charge of Umbrellas, &c.	Profit on Sale of Medals.
			Entrance Fee.	Amount.	Total each Week.				
		£. s.		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
June 23	Mon.	2 2	1/	3,016 11 6		26 15 6	4 17 4	3 13 2	–
24	Tues.	15 15	1/	3,186 12 0		25 19 2½	5 10 4	3 7 0	2 11 1
25	Wed.	4 4	1/	2,691 14 0		22 13 10	6 4 0½	2 13 0	5 7 6
26	Thur.	5 5	1/	2,722 10 0		21 9 6	6 10 8	2 10 0	5 12 3
27	Frid.	4 4	2/6	2,969 6 0		12 13 5	5 9 10½	2 2 2	7 0 0
28	Sat.	16 16	5/	1,590 16 0		3 7 8	1 10 1	0 13 0	3 1 3
					16,177 9 6				
30	Mon.	–	1/	2,469 16 6		16 2 11	5 16 7	1 10 10	5 0 3
July 1	Tues.	5 5	1/	2,429 10 0		19 0 8½	6 3 6½	19 9 10½	5 15 6
2	Wed.	11 11	1/	2,363 18 0		19 12 7½	5 15 6	4 3 8	4 5 6
3	Thur.	10 10	1/	2,651 19 0		26 11 5½	3 0 4	6 13 0½	7 1 6
4	Frid.	22 1	2/6	2,592 2 6		15 9 7	2 11 7	2 19 8	14 7 0
5	Sat.	16 16	5/	1,565 15 0		5 0 4	1 10 0	0 17 4	4 0 6
					14,073 1 0				
7	Mon.	–	1/	2,852 2 0		21 14 5	5 15 9	2 13 4	5 0 3
8	Tues.	2 2	1/	3,169 5 0		25 1 7	4 17 6	7 1 2	6 10 6
9	Wed.	8 8	1/	2,710 6 0		27 6 7	4 12 8	9 0 4	7 19 3
10	Thur.	6 6	1/	2,958 0 0		28 0 6½	4 12 1	14 16 9	8 7 6
11	Frid.	17 17	2/6	3,145 17 6		18 14 1½	3 4 8	8 8 8	14 3 6
12	Sat.	8 8	5/	1,589 15 0		4 12 11½	1 14 11	2 3 2	5 19 0
					16,425 5 6				
14	Mon.	3 3	1/	2,957 8 0		23 15 0½	5 12 10	7 15 10	8 9 3
15	Tues.	7 7	1/	3,502 1 0		27 3 1	6 6 10½	12 5 8	10 6 3
16	Wed.	3 3	1/	2,910 4 0		28 7 9½	4 11 9	5 5 2	8 12 0
17	Thur.	7 7	1/	3,023 5 0		27 14 8	4 14 6	8 11 4	11 11 9
18	Frid.	17 17	2/6	3,762 7 6		19 2 6½	4 3 4	4 8 7½	18 6 3
19	Sat.	18 18	5/	1,360 15 0		3 12 2	0 14 1	5 12 8	6 17 0
					17,516 0 6				
21	Mon.	6 6	1/	3,338 7 0		24 3 3½	5 12 6	5 9 9½	9 11 3
22	Tues.	10 10	1/	3,236 2 0		22 19 8	5 14 10	3 13 8	8 0 6
23	Wed.	–	1/	2,438 14 0		19 10 6	4 13 3	21 5 2	10 6 0
24	Thur.	–	1/	2,286 1 0		19 11 10½	4 0 4	25 16 4½	12 0 9
25	Frid.	–	2/6	2,984 0 0		16 9 6½	3 12 0	10 6 4	14 0 0
26	Sat.	6 6	5/	1,478 0 0		4 10 1	18 9	3 5 6	6 12 9
					15,761 4 0				
28	Mon.	6 6	1/	3,194 13 0		23 8 8½	5 1 3	12 13 3½	9 0 9
29	Tues.	6 6	1/	3,308 10 0		22 10 9	5 17 2	9 5 3½	8 7 9
30	Wed.	–	1/	2,835 6 0		23 17 7½	5 4 1	7 6 7½	8 3 3
31	Thur.	–	1/	2,800 16 0		24 11 1½	4 14 3	15 13 8½	9 0 3
Aug. 1	Frid.	53 0	2/6	2,852 2 6		14 0 9½	5 4 4	14 3 4	10 14 0
2	Sat.	51 10	5/	1,324 9 0		3 12 8½	1 5 11	2 4 10	4 11 9
					16,315 16 6				
4	Mon.	22 0	1/	3,006 18 0		17 18 1	6 3 2	3 6 2	6 9 9
5	Tues.	11 10	1/	3,236 9 0		21 1 9	4 19 3	3 10 4	8 9 6
6	Wed.	22 0	1/	2,833 4 6		23 12 10	4 0 1	5 14 2	9 10 0
7	Thur.	13 10	1/	2,859 16 0		23 6 11½	5 18 3	5 15 6	7 12 6
8	Frid.	27 0	2/6	1,920 11 6		9 9 0½	3 6 11	1 18 2	8 0 0
9	Sat.	25 0	2/6	1,584 15 0		7 17 10	2 4 10	1 16 6	8 12 3
					15,441 14 0				
11	Mon.	5 10	1/	2,829 19 0		20 14 3½	5 5 8	3 3 6	7 7 9
12	Tues.	7 0	1/	2,826 19 0		17 11 6½	6 4 0	3 5 8	8 6 0
13	Wed.	1 0	1/	2,264 10 6		16 5 4½	5 15 9	16 13 1	9 15 9
14	Thur.	4 10	1/	2,386 0 0		19 8 3½	4 5 11	4 18 4	8 1 3
15	Frid.	15 0	2/6	2,151 7 0		11 15 10½	3 8 1	2 18 8	10 9 0
16	Sat.	29 0	2/6	1,592 7 6		7 3 2	2 3 10	1 16 4	9 0 6
					14,051 3 0				
18	Mon.	5 0	1/	2,506 16 0		21 16 4½	3 1 9	8 19 2	8 2 0
19	Tues.	8 0	1/	2,773 16 6		23 3 0	3 9 6	3 7 1	8 18 3
20	Wed.	1 10	1/	2,217 8 0		19 6 4	4 17 1	2 11 4	8 3 3
21	Thur.	1 0	1/	2,470 2 6		19 11 3	5 10 1	2 10 8	9 3 6
22	Frid.	13 0	2/6	1,957 12 6		9 11 2½	3 9 8	1 17 10	11 4 6
23	Sat.	8 0	2/6	1,434 17 6		6 7 11½	1 12 5	4 1 4	8 16 3
					13,360 13 0				

Return showing the Receipts from all Sources for each Day during the Exhibition—*continued.*

DATE.	DAY OF THE WEEK.	SALE OF SEASON TICKETS.	RECEIPTS AT THE DOORS.			RETIRING ROOMS.	WASHING PLACES.	TAKING CHARGE OF UMBRELLAS, &c.	PROFIT ON SALE OF MEDALS.
			Entrance Fee	AMOUNT.	TOTAL EACH WEEK.				
		£. s.		£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Aug. 25	Mon.	3 0	1/	2,436 14 0		21 18 5½	3 12 0	3 5 4	8 0 6
26	Tues.	5 10	1/	2,493 10 0		26 6 5	2 19 11	7 14 2	9 3 0
27	Wed.	5 10	1/	1,896 1 0		22 1 10½	2 16 11	7 4 2	7 13 0
28	Thur.	6 0	1/	2,167 11 0		24 3 0½	2 9 7	9 19 8	9 7 6
29	Frid.	2 0	2/6	1,559 17 6		13 4 8	1 5 1	14 11 0	10 12 6
30	Sat.	7 0	2/6	1,306 15 0		7 0 9½	1 2 1	5 5 8	9 5 0
					11,860 8 6				
Sept. 1	Mon.	8 10	1/	2,465 10 0		20 12 3½	4 9 5	6 4 0	7 2 0
2	Tues.	1 10	1/	2,407 15 0		20 11 1½	4 5 7	12 13 2	7 0 0
3	Wed.	-	1/	2,080 12 0		20 2 8	3 10 4	6 0 8	5 3 0
4	Thur.	-	1/	2,137 18 0		21 10 0	2 18 8	7 0 5	5 0 0
5	Frid.	3 0	2/6	1,593 7 6		9 12 0½	1 7 11	2 18 8	6 10 0
6	Sat.	1 10	2/6	1,198 15 0		6 9 5½	1 1 2	2 4 2	3 5 0
					11,883 17 6				
8	Mon.	-	1/	2,767 17 0		26 10 4½	3 0 0	5 16 0	2 15 9
9	Tues.	-	1/	2,795 1 0		25 9 2½	3 10 9	4 17 4	8 17 6
10	Wed.	5 0	1/	2,395 5 6		24 11 10½	3 1 2	4 6 8	8 10 0
11	Thur.	-	1/	2,637 19 6		26 19 2	3 7 1½	3 14 8	7 15 6
12	Frid.	6 0	2/6	1,900 0 0		11 6 5½	2 3 4	2 0 8	10 2 6
13	Sat.	2 10	2/6	1,441 15 0		6 18 0½	1 12 0½	2 11 8	8 11 3
					13,937 18 0				
15	Mon.	1 10	1/	2,933 10 6		26 6 3	3 18 4	5 3 0	5 14 6
16	Tues.	1 0	1/	3,008 9 0		26 15 7	3 7 4	4 10 6	9 6 6
17	Wed.	2 0	1/	2,551 1 0		24 19 1	3 4 8	7 19 10	9 0 0
18	Thur.	-	1/	2,810 1 6		26 16 7	3 6 6	5 6 0½	9 5 0
19	Frid.	-	2/6	2,227 2 0		13 10 9	1 19 8½	4 11 8	11 17 6
20	Sat.	-	2/6	1,604 13 0		7 0 7½	1 7 2	3 14 6	8 12 6
					15,134 17 0				
22	Mon.	-	1/	2,863 6 0		25 0 1¾	3 14 7	5 19 4	6 0 0
23	Tues.	-	1/	2,859 7 0		23 19 2	4 1 2	6 7 4	6 10 0
24	Wed.	-	1/	2,572 12 0		23 12 4	3 15 0	9 14 0	7 4 0
25	Thur.	-	1/	2,725 14 0		25 16 5	3 4 10	9 0 7	7 16 0
26	Frid.	-	2/6	2,415 15 0		15 15 2¾	1 7 3	8 3 2	15 10 0
27	Sat.	-	2/6	1,852 2 6		9 16 10	1 3 7	6 13 4	12 10 0
					15,288 16 6				
29	Mon.	-	1/	3,295 15 0		28 18 10	2 15 7	7 5 4	8 10 6
30	Tues.	-	1/	3,303 4 0		26 14 7	3 12 5	22 0 10	10 18 0
Oct. 1	Wed.	-	1/	2,830 11 0		27 12 10	3 0 7	18 15 0	10 11 3
2	Thur.	-	1/	3,080 12 6		27 14 3	3 0 3	26 6 4	12 0 0
3	Frid.	-	2/6	3,354 3 0		17 13 2½	2 11 3	25 17 4	18 15 0
4	Sat.	-	2/6	2,862 14 0		12 17 2½	2 7 3	24 9 9	19 5 0
					18,726 19 6				
6	Mon.	-	1/	5,175 16 0		30 6 2	3 14 6	22 16 0	9 3 3
7	Tues.	-	1/	5,231 10 0		31 12 1	4 12 8	21 18 2	26 4 3
8	Wed.	-	1/	5,283 3 0		32 16 3½	3 14 3	12 19 11	16 7 9
9	Thur.	-	1/	4,344 7 6		25 1 1½	4 0 8	23 7 10	16 13 9
10	Frid.	-	2/6	4,914 1 6		18 1 4	4 12 2½	21 5 11	30 1 3
11	Sat.	-	2/6	4,845 13 6		15 4 1	3 10 11	14 15 7	26 11 0
					29,794 11 6				
13	Mon.	-	(Receipts from sale of Weather Charts, 8*l.* 10*s.* 4*d.*)		-	7 15 3½	1 5 9	3 11 6	12 5 9
14	Tues.	-			-	7 3 10	1 6 9	3 14 0	15 11 3
15	Wed.	-			-	2 6 9½	0 19 5	-	-
								838 14 0½	909 13 10
				Deduct paid for Umbrellas and Coats Lost*				7 3 6	-
				Deduct half Expense of Medal Cases -				- - -	44 15 3
		67,514 1	-	-	356,808 1 0	2,441 15 9¾	443 17 6	831 10 6½	864 18 7

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* There were further sums to the amount of 14*l.* 15*s.* paid for umbrellas and coats lost after the above account was closed.

APPENDIX No. XXXIV.

Account showing the Loss on Light Gold, Defaced, Spurious, and Foreign Coin, &c.

Date.	Daily Receipts.			Loss on Light Gold.			Defaced, Spurious, and Foreign Coin.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
May 2	560	0	0	0	19	0	—		
3	482	0	0	1	0	3	1	0	0
5	1,362	19	0	1	16	8	2	9	0
6	1,458	10	0	3	4	7	1	0	0
7	1,790	15	0	3	8	5	1	15	0
8	2,018	0	0	4	9	9	1	0	0
9	1,824	10	0	2	14	8	1	10	0
10	1,843	15	0	3	2	0	2	10	0
12	1,597	10	0	3	10	2	0	12	6
13	2,229	10	0	4	5	2	1	10	0
14	2,064	15	0	4	3	6	1	5	0
15	2,426	0	0	5	6	7	4	0	0
16	2,556	10	0	4	16	6	1	10	0
17	2,472	5	0	4	14	4	2	15	0
19	2,345	0	0	5	6	10	2	10	0
20	3,360	15	0	6	15	8	2	15	0
21	3,512	5	0	6	3	11	3	10	0
22	3,797	11	0	9	7	0	4	8	0
23	4,095	10	0	7	9	11	6	10	0
24	5,078	0	0	11	5	3	7	0	0
26	920	2	0	0	7	11	3	0	0
27	1,347	17	0	0	7	9	8	7	6
28	1,869	4	0	1	16	5	9	14	0
29	2,875	18	0	0	10	11	14	10	0
30	2,839	9	0	2	4	10	12	5	6
31	1,770	15	0	3	2	6	3	5	0
June 2	2,129	1	0	0	9	1	11	19	0
3	2,415	2	0	0	8	6	16	8	4
4	2,500	16	0	0	9	8	18	9	2
5	2,566	17	0	0	12	2	17	10	8
6	2,558	11	0	1	12	1	8	2	0
7	1,523	15	0	2	19	3	2	15	0
9	2,436	4	0	0	6	6	13	15	0
10	2,272	2	0	0	8	11	18	12	0
11	2,160	19	0	0	8	3	12	19	9
12	2,233	7	0	0	9	1	15	14	0
13	2,206	5	0	0	17	2	8	16	6
14	1,634	17	0	3	18	10	2	18	10
16	2,854	9	0	0	9	8	20	6	0
17	3,191	2	0	0	8	10	24	5	4
18	2,897	7	0	0	9	9	19	7	8
19	2,984	12	0	0	10	8	18	17	2
20	2,819	4	6	1	19	9	9	19	0
21	1,674	10	0	4	4	2	2	7	0
23	3,016	11	6	0	11	10	16	17	6
24	3,186	12	0	0	11	10	22	0	0
25	2,691	14	0	0	11	4	17	14	0
26	2,722	10	0	0	8	10	16	8	6
27	2,969	6	0	2	17	4	9	15	6
28	1,590	16	0	3	4	2	3	8	0
30	2,469	16	6	0	12	7	14	6	6
July 1	2,429	10	0	0	6	2	15	8	0
2	2,363	18	0	0	8	11	16	19	0
3	2,651	19	0	0	9	5	15	9	2
4	2,592	2	6	1	13	7	7	14	4
5	1,565	15	0	3	5	3	3	12	6
7	2,852	2	0	0	11	9	14	19	0
8	3,169	5	0	0	10	5	15	9	6
9	2,710	6	0	0	8	8	14	12	4
10	2,958	0	0	0	11	6	15	10	0
11	3,145	17	6	1	19	2	10	7	6
12	1,589	15	0	3	9	9	2	15	0
July 14	2,957	8	0	0	11	9	15	1	6
15	3,502	1	0	0	12	4	18	9	0
16	2,910	4	0	0	5	9	15	4	6
17	3,023	5	0	0	12	11	14	5	0
18	3,762	7	6	2	17	10	15	17	6
19	1,360	15	0	2	12	2	2	5	0
21	3,338	7	0	0	6	3	19	17	6
22	3,236	2	0	0	8	3	19	12	0
23	2,438	14	0	0	5	3	11	10	6
24	2,286	1	0	0	11	5	11	1	6
25	2,984	0	0	2	3	6	10	10	0
26	1,478	0	0	3	4	10	3	19	6
28	3,194	13	0	0	10	8	17	3	6
29	3,308	10	0	0	7	2	—*		
30	2,835	6	0	0	8	7	29	0	0
31	2,800	16	0	0	6	2	13	16	0
Aug. 1	2,852	2	6	1	18	1	8	12	6
2	1,324	9	0	3	3	8	4	9	0
4	3,006	18	0	0	6	9	14	7	0
5	3,236	9	0	0	7	1	15	19	0
6	2,833	4	6	0	5	0	14	7	1
7	2,859	16	0	0	7	9	15	16	0
8	2,920	11	6	1	6	4	6	11	6
9	1,584	15	0	2	3	5	5	5	0
11	2,829	19	0	0	5	11	13	3	2
12	2,826	19	0	0	8	7	12	8	2
13	2,264	10	6	0	9	2	10	0	6
14	2,386	0	0	0	9	1	10	0	0
15	2,151	7	0	1	9	0	7	11	3
16	1,592	7	6	2	8	6	3	7	6
18	2,506	16	0	0	11	0	12	6	0
19	2,773	16	6	0	7	1	15	16	6
20	2,217	8	0	0	6	3	11	18	0
21	2,470	2	6	0	11	2	13	11	2
22	1,957	12	6	1	1	9	4	12	6
23	1,434	17	6	1	9	0	5	18	6
25	2,436	14	0	0	8	4	10	14	0
26	2,493	10	0	0	7	6	12	10	0
27	1,896	1	0	0	6	7	7	6	0
28	2,167	11	0	0	10	8	10	11	0
29	1,559	17	6	0	16	7	4	7	6
30	1,306	15	0	1	5	8	3	5	0
Sept. 1	2,465	10	0	0	4	10	10	7	10
2	2,407	15	0	0	10	5	12	7	0
3	2,080	12	0	0	10	5	7	10	0
4	2,237	18	0	0	9	2	9	8	0
5	1,593	7	6	0	10	7	7	7	6
6	1,198	15	0	1	2	1	7	5	0
8	2,767	17	0	0	9	2	13	2	0
9	2,795	1	0	0	5	4	13	8	0
10	2,395	5	6	0	7	0	14	5	6
11	2,637	19	6	0	11	3	14	9	6
12	1,900	0	0	0	14	5	4	10	0
13	1,441	15	0	1	0	1	5	5	0
15	2,933	10	6	0	3	6	15	16	0
16	3,008	9	0	0	7	5	15	9	6
17	2,551	1	0	0	6	9	13	9	6
18	2,810	1	6	0	8	11	12	18	6
19	2,227	2	0	0	11	5	6	3	6
20	1,604	13	0	1	1	6	6	3	0
22	2,863	6	0	0	6	3	13	2	6
23	2,859	7	0	0	4	6	15	7	8

Included in July 30.

Account of Light Gold, &c.—*continued.*

DATE.	DAILY RECEIPTS.	LOSS ON LIGHT GOLD.	DEFACED, SPURIOUS, AND FOREIGN COIN.	DATE.	DAILY RECEIPTS.	LOSS ON LIGHT GOLD.	DEFACED, SPURIOUS, AND FOREIGN COIN.
	£. s. d.	£. s. d.	£. s. d.		£. s. d.	£. s. d.	£. s. d.
Sept. 24	2,572 12 0	0 9 1	14 4 0	Oct. 6	5,175 16 0	0 5 7	26 18 0
25	2,725 14 0	0 8 11	14 14 0	7	5,231 10 0	0 5 0	30 8 6
26	2,415 15 0	1 0 1	9 6 0	8	5,283 3 0	0 10 5	27 10 0
27	1,852 2 6	1 16 2	8 0 6	9	4,344 7 6	0 10 9	25 8 6
29	3,295 15 0	0 5 5	18 3 0	10	4,934 1 6	1 12 0	20 11 6
30	3,303 4 0	0 5 4	18 17 0	11	4,845 13 6	2 16 1	19 0 0
Oct. 1	2,830 11 0	0 9 6	15 15 5		356,808 1 0	211 9 9	1,558 11 3
2	3,080 12 6	0 12 2	16 4 6		On other Receipts	6 14 11	3 14 2
3	3,354 3 0	1 1 7	13 15 0				
4	2,862 14 0	2 16 7	12 13 6			218 4 8	1,562 5 5

			£. s. d.
Loss on Light Gold - -			218 4 8
Defaced and Foreign Coin		1,452 0 5	
Deduct Proceeds of ditto -		1,240 3 7	
			231 16 10
Spurious Coin—	12 Crowns -	3 0 0	
	260 Half-Crowns	33 5 0	
	1034 Shillings -	51 14 0	
	90 Sixpences -	2 5 0	
	3 Fourpences	0 1 0	
			90 5 0
Total Loss	On Daily Receipts	529 17 5	
	On other Receipts	10 9 1	
			540 6 6

F. S. CARPENTER,
Financial Officer,
16*th October* 1851.

APPENDIX No. XXXV.

RETURN showing the AVERAGE AMOUNT EXPENDED by the different Classes of VISITORS to the EXHIBITION.

	No. of Days* on which Money was Received.	Total No. of Visitors on these Days.	Total Amount of Receipts from each source.			Average Amount of Receipts for each Visitor.	
			£.	s.	d.	s.	d.
Days on which the entrance fee was 1l.							
Entrance Fee	2	33,042	1,042	0	0	20	0
Catalogues	2	33,042	316	12	3	0	2·3
Refreshments	2	33,042	767	12	11	0	5·5
Waiting-Rooms	2	33,042	3	13	3	0	0·03
Total			2,129	18	5	20	7·83
Days on which the entrance fee was 5s.							
Entrance Fee	28	567,119	61,347	7	0	5	0
Catalogues	28	567,119	2,579	1	6	0	1·09
Refreshments	28	567,119	10,722	5	7	0	4·4
Waiting-Rooms	28	567,119	192	5	9	0	0·08
Washing-Places	14	246,727	16	13	2	0	0·01
Deposit of Umbrellas, &c.	8	90,716	18	10	1	0	0·05
Medals	6	63,882	31	2	3	0	0·12
Total			74,907	5	4	5	5·75
Days on which the entrance fee was 2s. 6d.							
Entrance Fee	30	735,451	72,447	11	0	2	6
Catalogues	30	735,451	3,000	0	6	0	0·97
Refreshments	30	735,451	14,903	1	4	0	4·8
Waiting-Rooms	30	735,451	370	18	5	0	0·11
Washing-Places	30	735,451	81	3	11	0	0·03
Deposit of Umbrellas, &c.	28	674,601	207	12	10	0	0·07
Medals	26	618,247	326	1	9	0	0·11
Total			91,336	8	9	3	0·09
Days on which the entrance fee was 1s.							
Entrance Fee	80	4,678,583	221,971	0	0	1	0
Catalogues	80	4,678,583	12,615	5	1	0	0·67
Refreshments	80	4,678,583	47,956	15	5	0	2·4
Waiting-Rooms	80	4,678,583	1,857	10	11	0	0·1
Washing-Places	80	4,678,583	342	8	5	0	0·02
Deposit of Umbrellas, &c.	70	4,216,185	604	15	7	0	0·03
Medals	63	3,794,108	524	12	10	0	0·08
Total			285,872	8	3	1	3·3

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* The washing-places were opened on the 21st May; umbrellas, &c., were first taken charge of on the 11th June, and the sale of medals commenced on the 24th June.

R. G. WYLDE.

APPENDIX No. XXXVI.

ESTIMATE of the VALUE of the CONTENTS of the GREAT EXHIBITION of 1851.

Previously to the closing of the Exhibition, circulars were issued to the British Exhibitors, and the Commissioners or Agents of foreign countries and of the colonies, enclosing a printed form, and requesting that they would state thereon the value at which they estimated the articles which they respectively exhibited. Although the value of the greatest part of the Exhibition has thus been pretty accurately obtained, the *total*, as shown by the accompanying Return, can only be considered as approximate, in consequence of the impossibility of ascertaining, with any approach to accuracy, the value of the articles from some of the foreign countries, and of the difficulty with regard to some of the colonial departments. The estimates for the British side of the Building are more to be relied upon: but even there a few Exhibitors have refused, and others have neglected to supply the necessary information. In all these cases the best estimate possible has been formed from the opinion of competent persons, and from comparison with surrounding objects. In compiling this Return the cost of the fittings has been as far as possible excluded. Taking these, therefore, and the value of the Building itself into account, the value of the whole Exhibition as it stood would somewhat exceed two millions sterling. It being difficult to fix the marketable value of the Koh-i-Noor diamond, it is not included in the calculation.

Country.		Estimated Value.		
UNITED KINGDOM		£.	s.	d.
Class I.	Mining and Mineral	21,623	12	10
II.	Chemical Produce	3,279	16	4
III.	Food	3,565	4	3
IV.	Vegetable and Animal Produce	3,974	15	10
V.	Machines for Direct Use	108,115	5	11
VI.	Manufacturing Machines	44,976	6	10
VII.	Civil Engineering	20,123	18	11
VIII.	Naval and Military Engineering	30,079	4	5
IX.	Agricultural	13,426	8	8
X.	Philosophical Instruments	63,976	12	7
XI.	Cotton	1,828	9	9
XII. & XV.	Woollen and Mixed Fabrics	24,433	5	0
XIII.	Silk	5,427	15	10
XIV.	Flax and Hemp	5,000	9	0
XVI.	Leather	9.764	6	6
XVII.	Paper	7,242	0	2
XVIII.	Dyeing and Printing	4,239	8	2
XIX.	Tapestry and Lace	24,128	14	1
XX.	Clothing	6,408	11	2
XXI.	Cutlery	1,287	0	10
XXII.	Hardware	57,669	11	3
XXIII.	Precious Metals	340,481	17	7
XXIV.	Glass	21,126	1	11
XXV.	Pottery	10,939	7	3
XXVI.	Furniture	45,925	7	11
XXVII.	Mineral Manufactures	8,628	2	1
XXVIII.	Animal and Vegetable Manufactures	4,251	18	7
XXIX.	Miscellaneous	15,364	8	10
XXX.	Fine Arts	55,413	8	6
Belonging to different Classes.	Transept	12,569	0	0
	Main Avenue	40,113	0	0
	Outside	3,425	13	9
Exhibited by Her Majesty and Prince Albert, and not included in the above (exclusive of the Koh-i-Noor)		12,778	0	0
Total United Kingdom	£	1,031,607	4	9

Country.	Estimated Value.		
COLONIAL.	£.	s.	d.
India	70,000	0	0
Jersey and Guernsey	1,456	5	2
Ceylon	95	0	0
Ionian Islands	118	4	0
Gibraltar	2	0	0
Malta	1,133	8	10
Cape of Good Hope	367	17	10
Western Africa	323	0	0
Gold Coast and Ashantee	20	0	0
Canada	2,378	17	7
Nova Scotia	1,350	0	0
Newfoundland	1	0	0
New Brunswick	50	0	0
St. Helena	4	2	6
Mauritius	84	10	0
Grenada	1	0	0
Montserrat	1	15	0
Jamaica	10	0	0
St. Kitts	0	15	0
Barbadoes	63	0	0
Antigua	1	0	0
St. Vincent	2	0	0
British Guiana	150	0	0
Bahamas	122	19	0
Trinidad	100	0	0
Falkland Islands	25	0	0
Bermudas	25	0	0
New South Wales	132	15	9
South Australia	266	4	4
Van Diemen's Land	1,500	0	0
New Zealand	80	0	0
Labuan and Eastern Archipelago	36	0	0
Total Colonial £	79,901	15	0

Estimate of the Value of the Contents of the Great Exhibition of 1851—*continued.*

Country.	Estimated Value. £.	s.	d.
FOREIGN.			
China	6,367	10	0
Tunis	8,988	8	0
Brazil	180	0	0
Chili	1,000	0	0
Mexico	200	0	0
New Granada	200	0	0
Society Islands	50	0	0
St. Domingo and Colonies	30	0	0
Persia	464	0	0
Greece	725	0	0
Turkey	9,500	0	0
Egypt	800	0	0
Spain	10,000	0	0
Portugal and Madeira	5,000	0	0
Switzerland	8,153	17	11
Italy:—			
Rome	17,475	0	0
Sardinia	5,500	0	0
Tuscany	10,000	0	0
France	294,683	11	1
Belgium	60,000	0	0
Netherlands	5,920	10	0
Austria	71,444	18	2
Carried forward £	516,682	15	2

Country.	Estimated Value. £.	s.	d.
FOREIGN.			
Brought forward	516,682	15	2
Zollverein.			
1. Prussia and States not enumerated below	41,314	15	0
2. Bavaria	6,998	10	0
3. Saxony	5,708	10	0
4. Wurtemburg	3,905	15	0
5. Frankfort-on-the-Maine	677	0	0
6. Grand Duchy of Hesse	1,766	15	0
7. Luxemburg	86	10	0
8. Nassau	156	0	0
Hanse Towns and North Germany:—			
Hanover	208	15	0
Mecklenburg-Strelitz Mecklenburg-Schwerin	238	15	0
Oldenburg	210	0	0
Hamburg	3,317	5	0
Lubeck and Bremen	482	15	0
Denmark	2,000	0	0
Sweden and Norway	3,941	17	0
Russia	58,889	14	5
United States of America	23,835	0	0
Total Foreign Countries £	670,420	11	7

SUMMARY.

	£.	s.	d.
United Kingdom	1,031,607	4	9
Dependencies of ditto	79,901	15	0
Foreign Countries	670,420	11	7
Total £	1,781,929	11	4

25th February, 1852.

H. W. Tyler, *Lieut. R.E.*

APPENDIX No. XXXVII.

REPORT on the State of the TRADE COLLECTION, now the property of the ROYAL COMMISSIONERS for the GREAT EXHIBITION of 1851.

THE following Memorandum shows the means by which the Collection has been formed, its present state and extent, and its prospects of increase from the United Kingdom and her Colonies, as well as from foreign countries.

Means by which it has been formed.—During the period that the Exhibition was open to the public, communications were addressed to as many of the British and Colonial Exhibitors as circumstances permitted, and to the Foreign Commissioners, transmitting to them the following Circular issued by direction of Her Majesty's Commissioners on the 18th July 1851, pointing out to them the advantages which would accrue from a systematic Collection of the different Classes of objects which they respectively exhibited, and requesting their co-operation and assistance in forming such a Collection.

"COLLECTION of SPECIMENS EXHIBITED.

"Her Majesty's Commissioners for the Exhibition of the Works of Industry of all Nations have had under their consideration several suggestions to form and preserve a record of those articles in the Exhibition which are calculated to be of use for future consultation, and having regard to the public advantages which would be likely to arise from forming such a record, have authorized the Executive Committee to make preparations for carrying the proposal into effect, and to collect actual specimens of certain of the materials and fabrics themselves exhibited, so far as it may be possible, and where not possible, to obtain accurate representations of them.

"Before entering into communication with each Exhibitor, and seeking his co-operation in forming this Collection, the Executive Committee consider it proper to state generally some of the uses which it is conceived would result from it. It will be obvious that the verbal description of the objects exhibited, which forms the Catalogue, will perpetuate the Exhibition in a very imperfect way; and although diagrams and pictorial representations of the objects afford a partial remedy, they cannot be compared with specimens of the objects themselves, for conveying an accurate idea of them. It therefore follows, that records of the articles exhibited can only be obtained by means of specimens of them; and it is now proposed to adopt this principle, as far as it may be practicable, and thus register, in the most unmistakeable form, for the use of after ages, the discoveries and uses of various materials, and show the progress which human industry had made in the present year, so far as it was developed in the Exhibition. The Collection will serve as a valuable means of reference for commercial, scientific, and artistic purposes; it will enable a strictly philosophical classification of the objects to be made, and render a comparison of them easy, which was unattainable in the present geographical arrangement of the Exhibition.

"Any successful realization of the proposed plan must depend upon the co-operation of the Exhibitors, and their appreciation of its uses. A merchant, importer, or manufacturer will easily understand the advantage which he would derive from the existence of a systematic Collection, always accessible, of specimens of any given kind of Raw Materials or Manufactures, when he had occasion to consult them. It may, therefore, be expected that the interest of each Exhibitor will induce him to aid in forming the proposed Collection, by presenting, as far as practicable, specimens of the materials or fabrics which he is exhibiting. Every Exhibitor hitherto consulted on this subject has cordially welcomed the proposal, and has promised every assistance in carrying it into effect, by freely contributing both actual specimens and every information concerning them which may be desired.

"In forming the Collection, different kinds of treatment will have to be adopted towards the various classes of articles. In respect of the department of Raw Materials, constituting the four first Classes of the Exhibition, it will be desirable to collect specimens of the actual articles themselves, and Exhibitors will be requested to place small duplicate specimens at the disposal of the Commissioners. But this principle, for reasons of cost, size, &c., will not apply as a general rule to machinery and articles of cubical bulk, such as Metal Manufactures, Furniture, Pottery, Sculpture, &c. It is proposed to obtain a record of these, with the permission of the Exhibitors, where it may be desirable to have it, by means either of accurate drawings or Talbotypes. Those cases where the representation of the article is preferred to the article itself will be hereafter pointed out. As respects the remaining Classes of the Exhibition, such as all kinds of Woven Fabrics, in Cotton, Wool, Flax, Silk, &c., all Felted and laid Fabrics, Paper-hangings, Leathers, &c., it is proposed to collect duplicate specimens of the articles themselves.

"It is also intended to collect all Price Lists, Trade Catalogues, Circulars, and Prospectuses prepared by the Exhibitors, and to bind them in Classes.

"Her Majesty's Commissioners intend that this Collection shall be turned to the greatest public use; and they think that, when formed, it will occupy only the space of a moderate-sized room.

"Instructions suitable to each Class of Exhibitors will be prepared and addressed to the Exhibitors, through the superintendents, who will give any further information on the subject.

"Any communications on this subject should be addressed to Lieutenant Tyler, R.E., Offices of the Executive Committee.

"M. DIGBY WYATT,
"*Secretary to the Executive Committee.*

"*Exhibition, Hyde Park,* 16*th July* 1851."

Result.—Upwards of 3,700 of the British Exhibitors have replied to these communications in a satisfactory manner; 575 of that number have presented the whole or part of the articles which they exhibited to the Royal Commissioners, and a large proportion of the remainder have either sent or have promised to send Specimens or Drawings of them, as soon as a fit receptacle shall have been provided.

In the case of the Foreign Commissioners, the applications were, in many cases, forwarded to their respective Governments, and not only have assurances of co-operation been received from 15 Foreign Governments, but all the countries which took part in the Exhibition have already contributed, and some of them largely, to the proposed Museum.

A considerable proportion of the articles exhibited from the colonies of the Cape of Good Hope, Canada, Van Diemen's Land, and New Zealand have also been placed at the disposal of the Royal Commissioners; as also smaller contributions from Jersey and Guernsey, Ceylon, New Brunswick, and the Eastern Archipelago.

And there has been added to the Collection the produce of some countries, such as China, which took no part in the Exhibition; through the liberality of gentlemen in England, who supplied the deficiencies that would thus have otherwise occurred.

In November 1851 a second Circular was issued by the Executive Committee for the information of Contributors, and for the guidance of their officers. It was as follows:—

"STATEMENT of the ORIGIN, PRESENT POSITION, and PROSPECTS of the COLLECTION, now in course of formation by HER MAJESTY'S COMMISSIONERS.

"21*st November* 1851.

"As many inquiries are made as to the object of the Collection in course of formation, and as to the position in which it now stands, it has been deemed advisable to prepare the following statement.

"On the 5th of July 1851, Her Majesty's Commissioners authorized an official application to be made to Exhibitors for Specimens of the Raw Produce and Manufactures exhibited by them, with a view to the future establishment of a Commercial Museum.

"It was at that time considered that such a Collection would form an interesting record of the Exhibition of 1851, and, consequently, of the state of industrial science in that year; and that it would not at first be more extensive than could be contained in a good-sized room. But the numerous and liberal contributions of the Exhibitors, both of Great Britain and Foreign Countries, have gradually extended the scope of the Collection, and, in fact, made it the germ of what may become, not merely interesting to the statisticians of future ages, but of that which may satisfy a great public want in this Metropolis, viz., a Trade Collection of the Imports and Exports of the World, where men of business may examine and practically test samples of those articles in which they are trading.

"This direction has been already given to the Collection by the important Contributions of Exhibitors of all countries, many of whom have presented valuable articles, with the certainty that it will be a means of bringing the produce of their mines, cultivation, or workshops, before the notice of the mercantile and general public, with even a more permanent advantage to themselves than has been derived from the Exhibition which has just closed.

"The destination of such a Collection, as well as the further development of the undertaking, are, necessarily, subjects for the future consideration of the Royal Commissioners; but, in the meantime, the Executive Committee consider it their duty to aid, so far as their authority extends, in satisfying the desire so universally expressed to them; and it must be obvious that the fate of such a Collection must entirely depend upon the interest which the public of this and other countries take in it, and individuals will be able to judge for themselves whether, after this explanation of the present state of the matter, they do or do not wish to be represented in the Collection.

"In order to guard themselves, on the one hand, against overstepping the limits within which their action is confined by Her Majesty's Commissioners, and, on the other hand, against disappointing the expectation of the public in forming this Collection;

"The Executive Committee have laid down for themselves and their officers the following principles:—

"1. That the Collection should comprise samples of all articles of trade.

"2 That for the present, Exhibitors only in the late Exhibition will be permitted to contribute to the Collection.

"3. That antiquities, curiosities, and articles relating only to pure science, are inadmissible, there being already places far better suited to the reception of such things than what it is now contemplated to establish.

"4. That as it is to the interest of the public that those articles only shall be received which it would be of advantage to the producer to supply, no Exhibitor should be pressed to contribute to the Collection.

"5. That the question of presentation should be resolved only with reference to the point whether it is of any value, in a commercial point of view, for the public to know that A. B. produces such an article in such a country.

"6. That it shall be quite at the option of the Depositor to affix to his article all necessary information in regard to price, process, amount of production, &c., &c.

"7. That the presentation of objects is to be absolute, it being clearly understood that Her Majesty's Commissioners are invested with the power of disposing of the articles in the way which, in their opinion, may be most advantageous to the public.

"M. DIGBY WYATT,
"Secretary to the Executive Committee."

Present State and Extent.—No attempt has yet been made to arrange the Collection, further than dividing it into the thirty classes which formed the great divisions of the Exhibition, and keeping the articles from the several colonies, and from the several foreign countries, distinct from each other; and in this order they are packed away as closely as is consistent with safety, and with facilities for dusting and cleaning.

The samples of fabrics, and all such articles as would suffer from exposure to air and dust, have been carefully wrapped up and are kept in heated rooms. Many of the more delicate specimens, and others not provided with glass cases, still remain in their packing cases. Such fruits and preserved products as would not otherwise keep, have been secured in square glass bottles. The whole of the articles are therefore in a good state of preservation, and are in readiness to be removed to their final destination.

When such removal shall take place, it will probably be undesirable to preserve the distinction of countries, but rather to collect all articles, from whatever clime or region, into their proper class; so that in order to compare—say—a specimen of Australian with another of Bohemian wool, it will not be necessary to hunt round the Collection for each; but they will be found together under the head of "Animal Raw Produce."

Tickets have been affixed to the whole of the articles, showing the name of the donor, their class, and number, as stated in the Official Catalogue, and in most cases the date of their receipt into the Collection. A catalogue of the articles, based upon the Official Catalogue, has also been prepared. The space which the Collection now occupies is 12,600 square feet.

The following is a list of the principal contributions that have been received:—

UNITED KINGDOM.

Class I.—A large collection of Building Materials; Coal; Marbles; Tiles; Pipes; valuable Ores; series, showing the process of smelting Iron and Copper; Peat Fuel; Models of Mines; Clays and Sands.

Class II.—Large Crystals, natural and artificial; Spars; eight series, showing the preparations of Camphor, Kelp, Argol, Lemon Juice, Natural Borax, Potashes, Soda, Nitrate of Soda Mineral Waters; Dried Herbs; Colours; and a number of Chemical Compounds.

Class III.—Grain; Preparations for Food from Blood, and other substances; Preserved Fruits and Meats; Honey; British Cigars; British Maccaroni; Hops.

Class IV.—Specimens of Raw and Manufactured Flax; selections of Oils, Fats, and Suets; Dyeing Materials; Colours; Gums for Varnishes; process of manufacturing articles from Cork; specimens of Woods.

Class V.—Plans, Drawings, and Models of Machinery.

Class VI.—Plans, Drawings, and Models of Manufacturing Machines.

Class VII.—Models and Drawings of Engineering and Building Contrivances and Inventions.

Class VIII.—Models of Boats, Docks, &c.

Class IX.—Drawings of Machinery, and specimens of Agricultural Implements.

Class X.—Specimen of Electrotyping, and Philosophical and Surgical Apparatus.

Class XI.—Cases of Cotton of various kinds.

Classes XII., XIII., XIV., XV.—Numerous samples of Fabrics.

Class XVI.—Tanned Hide of Walrus; Leather, Raw, and manufactured into Boots, Saddles, Writing and other Cases; Harness Ornaments.

Class XVII.—Inks, and the materials from which they are made; Cardboard and Paper; Type; Stereotype Plates.

Class XVIII.—Machine and Block Chintz Furnitures; Fabrics and Designs.

Class XIX.—A Lace Pillow from Buckinghamshire; Floor Cloths; Needlework and Tapestry.

Class XX.—Straw Plait for Bonnets; Waistcoats, Coats, Gloves, &c.

Class XXI.—Series, showing progress of Knives from the Raw Material to the Manufactured Article.

Class XXII.—Buttons, Wires, Grates, Fishhooks, and Needles, in stages of manufacture; cases of Saws; Hinges, Bolts, Pulleys, &c., from brass foundry.

Class XXIII.—Ornaments for Plaids and other Articles.

Class XXIV.—Imitation Marbles; Painted, Stained, and Ornamental Glass; Glass Shades, and other Glassware.

Class XXV.—Several articles of Pottery; specimens of China and Earthenware.

Class XXVI.—Decorations in Cement, Imitation Marble, Paper Hangings.

Class XXVII.—Pedestals and Slabs, Black Marble Vases, Fire Bricks, Crucibles, Retorts, Mosaic Pavements.

Class XXVIII.—Beehives, Brushes, Ivory, Raw and Manufactured; British Ivory, Mouldings by Machinery, Rugs.

Class XXIX.—Soaps, Ointments, Models and Toys, Fishing Nets and Baits.

Class XXX.—Models, Materials for Etching, Pencils, Chalks, and Colours.

COLONIAL.

East Indies.—Seeds, Herbs, Roots, some Cotton, a few specimens of Woods and Coal, Bark. (Assurances of further support have been received from the Court of Directors.)

Jersey and Guernsey.—A small quantity of Grain, Silk, and a few Models.

Ceylon.—Flax, Fishing Nets, a few specimens of Earthenware, and Models.

Cape of Good Hope.—Specimens of Woods, Medicinal Herbs and Drugs, Oils, Argol for Staining, Oyster Shells used as Lime.

Canada.—A collection of Grains and Garden Seeds, Flax, Bark, Beeswax, specimens of Woods, and amongst them of Birch and Maple for Veneering, Maple Sugar, Cotton Silk, Mineral Waters.

Nova Scotia.—Ores, Grains, Snow Shoes.

New Brunswick.—Ores, Coal, Plumbago, Indian Corn, a few Woods, green Candles.

St. Helena.—Raw Cotton, Rock Salt, Alkali.

Bahamas.—Arrowroot, raw and spun Flax, Indian Corn.

Bermuda.—Arrowroot, Corals, Straw Plait.

Van Diemen's Land.—Specimens of Rock Crystal, Beryl, Topaz, &c., Marble, Wheats, Grains, and Woods, Flax, Rope and Yarn, Biscuits, Starch, Preserved Meat, Pickles and Preserves, Oils, Honey, Cayenne Pepper, Beeswax, Parchment, Tallow, Wool, Feathers, Ivory and Sperm Whale Teeth, Tweeds and Shawls, Tanned Skins, Leather, raw and made into Boots and Shoes, Manufactured Articles from Woods.

New Zealand.—Ores, Minerals, Clays, Building Stones, some partly dressed, Coal, Sulphur, Manganese. Lignite, Crucibles, Iron Sand, a few samples of Grains, Flour, raw and prepared Flax, Rope, Twine, and Cord, various rough and polished Woods, Barks used for Tanning, Baskets, Mats and Straw Hats, Hops, Raw Wool, Sharks' Fins (as eaten in China), Dried Fish, Sponges.

Eastern Archipelago.—A Case from the Messrs. Hammond, containing Sugar, Nutmegs, and other Spices, Tortoise and Turtle Shell, Mother-of-Pearl, Gutta Percha, Gums and Resins, and other Products.

FOREIGN STATES.

United States of America.—Large Ores, Pig Iron, a few Grains, Specimens of Raw Wool, Wires.

Austria.—Ores. Collection of Chemical Products; Grains, Series from Wheat to Flour, of various kinds; Bar and Sheet Iron.

Belgium.—Hops and Silk. (A Collection is being prepared in Belgium.)

China.—Collection of the Materials used in the Great Porcelain Manufactory, sent home by Mr. Alcock, the British Consul at Shanghai; Flax, Woods, Grass Cloth, Grass Cambric, other Cloths, Teas, Edible Birds'-nests and Sea-slugs, Raw and Manufactured Silk.

Egypt.—Almost the whole of the Articles which they exhibited at the late Exhibition; a most valuable Collection.

France.—Mineral Ores, Preserved Vegetables, Raw Cotton, Opium, Cochineal, Manufactured Horse-hair, Ropes, Printed Cottons and Cloths, Collection of the Works of Watches.

Germany: Zollverein States.—Collection of Ores and Minerals, Zinc and Iron Castings, Examples in Terra Cotta, Iron, and Manufactures from it, Mosaic Work, Roman Cement, Syrups, Acids, Chemical Produce, Starch, Potato Cuttings and Flour, Brown and White Beetroot Sugar, Raw and Spun Flax, Raw and Carded Yarns, large Collection of Fleeces and Wools, Raw and Manufactured Silk Fabrics, Shawls and Cloths, Leather, Coloured Papers, Writing Papers, Sealing Wax, Composition and Papier Maché Figures, Crucibles, Pottery and Chemical Apparatus, Hats, Gloves, and Hose, Glass Ware, Samples of Ultra-marine, Buttons, Matches, Wax-work, Umbrella and Parasol Frames, Specimens of Oil Printing.

Bavaria.—Optic Mosaic, Ultra-marine, Fire-clay, Woollen Cloths, &c.

Wurtemburg.—Sweetmeats and Preserves, Artists' Colours, Leather, plain and varnished, Fancy Papers and Card-board.

Grand Duchy of Hesse.—Manganese Ores, Lignite Chicoré, Lamp Black.

Luxemburg.—Paper Hangings, Mosaic Pavement.

Nassau.—Smoking Pipes, Ultra-marine and Colours.

Greece.—All the Articles exhibited from that Country, with the exception of those belonging to seven Exhibitors.

Hanover.—Asphalte and Paper Hangings.

The Netherlands.—Glass Pipes and other Glass Ware.

Portugal.—The greatest part of the Articles which were exhibited from that Country.

Russia.—Earths and Ores, Shot and Shells, Wrought and Cast Iron, Chemical Products, Grains, Seeds, and Roots, Raw Cotton, Starch, a few Specimens of Woods, Isinglass, Stearine Beeswax, Soap, Leather, Silks.

Sardinia.—Plate Table-top, large Collection of Chemical Products, Oils, Glue, Wax, Linseed Cake, Lucifer Match Wood, Retort, Samples of Silk and Velvet, Model Shell for Artillery, Brushes, Soap, Sweetmeats.

Spain.—Coloured Earths for Painting, Marbles, Mineral Ores, Chemical Products, Gums, Dried Herbs, Preserved Fruits, and other Vegetable Productions, Flax, Hempen Rope, Raw Wools, Silks, several Mineral Waters, Stearine Candles, Shot, Cork, Wine.

Sweden and Norway.—Cobalt and other Ores, Polished Granite and Porphyry, Iron and Steel Wire, Grains, Sugar Loaves, Sugar, Syrup and other Produce from Potatoes, Flax, Wool, Stearine Candles, Silk and Cocoons.

Tunis.—Earths, Lead and Copper Ores, Grains and other Vegetable produce, a few specimens of Woods, Tobacco, Oils, Pottery, Undressed Skins, Leather Water-bags.

Turkey.—Nearly all the Vegetable and Mineral Raw Produce exhibited, and a large proportion of the Animal Raw Produce.

Tuscany.—Ornamental Stones, Sulphur, Quicksilver, Alum, Cinnabar, Coals, Bricks, Wood, Colours for Printing, Varnish.

Prospects of Increase.—Offers of assistance in the shape of contributions have been received from 628 Exhibitors in the late Exhibition, in addition to those by whom the articles of British produce, as above enumerated, have been presented. These are for the most part waiting until a suitable depository shall have been provided. In many cases they have been requested by the Executive Committee thus to reserve their contributions. But some Foreign countries are under promise to add to the Museum in course of formation, and the Royal Commissioners are under pledge to furnish samples of British produce in exchange for what has been already presented to them.

CLASSIFIED RETURN of the EXHIBITORS who have PRESENTED or PROMISED SAMPLES of PRODUCE and MANUFACTURES to the ROYAL COMMISSIONERS.

Class or Country.	No. of Exhibitors who have		
	Presented Specimens.	Presented Drawings.	Promised Samples, &c.
UNITED KINGDOM.			
Class I.	204	6	29
II.	68	1	24
III.	59	-	18
IV.	53	2	17
V.	30	115	12
VI.	18	49	9
VII.	35	39	12
VIII.	29	75	16
IX.	16	53	10
X.	35	84	32
XI.	28	-	15
XII. & XV.	60	1	70
XIII.	24	-	22
XIV.	18	-	23
XVI.	24	3	30
XVII.	34	16	32
XVIII.	16	6	21
XIX.	39	6	58
XX.	45	5	45
XXI.	1	4	3
XXII.	58	86	48
XXIII.	1	18	9
XXIV.	8	7	11
XXV.	9	5	10
XXVI.	10	26	22
XXVII.	27	13	9
XXVIII.	18	3	23
XXIX.	35	3	40
XXX.	18	28	15
Total United Kingdom	1,020	654	685
COLONIES.			
India	*	-	-
Ceylon	1	-	-
Cape of Good Hope	11	-	-
Western Africa	1	1	-
St. Helena	1	-	-
Jersey and Guernsey	18	1	-
Canada	39	-	-
Nova Scotia	1	-	-
New Brunswick	5	-	-
Grenada	1	-	-
Montserrat	1	-	-
British Guiana	1	-	-
Bahamas	1	-	-
Bermuda	4	-	-
New South Wales	3	-	-
South Australia	4	-	-
Western Australia	14	-	-
Van Diemen's Land	65	-	-
New Zealand	39	-	-
Eastern Archipelago	2	-	-
Total Colonies	212	2	-

Class or Country.	No. of Exhibitors who have		
	Presented Specimens	Presented Drawings.	Promised Samples, &c.
FOREIGN COUNTRIES.			
America	23	-	-
Austria	38	-	-
Belgium	6	-	-
China	3	-	-
Egypt	*	-	-
France	14	1	-
Greece	20	-	-
Hanover	2	-	-
Algeria	8	-	-
Chili	1	-	-
Netherlands	1	-	-
Madeira	1	-	-
Society Islands	3	-	-
St. Domingo	1	-	-
Sweden and Norway	32	-	-
Tunis	*	-	-
Portugal	127	-	-
Turkey	*	-	-
Tuscany	15	-	-
Spain	144	-	-
Russia	102	-	-
Switzerland	2	-	-
Zollverein	195	1	-
Bavaria	14	1	-
Saxony	8	-	-
Wurtemberg	6	-	-
Grand Duchy of Hesse	6	-	-
Luxemburg	2	-	-
Nassau	5	-	-
Mecklenburg-Schwerin	1	-	-
Sardinia	21	-	-
Lubeck	2	-	-
Total Foreign Countries	803	3	-
SUMMARY.			
United Kingdom	1,020	654	685
Colonies	212	2	-
Foreign Countries	803	3	-
Total	2,035	659	685

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* The Contributions of the East India Company and of the Governments of Turkey, Tunis, and Egypt, are large and valuable, but cannot be represented by any particular number of Exhibitors.

Value.—The commercial value of the articles in the possession of the Royal Commissioners has been roughly estimated at—

British - - -	£6,563
Colonial - - -	452
Foreign - - -	1,703
Total - -	£8,718

But this commercial value bears but a small proportion to the real value of such a Collection, when the difficulty of bringing it together is considered.

H. W. Tyler,
Lieutenant Royal Engineers.

1st *March*, 1852.

[Since the above Statement was made the collection has, by permission of Her Majesty, been temporarily deposited in Kensington Palace.]

APPENDIX No. XXXVIII.

Report upon the Collection of Trade Circulars ordered to be formed by the Royal Commissioners.

Whilst the Exhibition was open to the public, circulars were issued to the British Exhibitors, requesting them to forward fifty copies of any prospectuses which they might have published, for the purpose of being bound up and distributed to public libraries and institutions, more especially in our Colonies. The same request was made to Foreign Exhibitors through their respective Commissioners.

The result has been that fifty sets of sixteen volumes, bound in an octavo form, have been prepared, containing the usual Trade Circulars and Priced List of 876 Exhibitors who belong to the classes shown in the accompanying Table.

Table showing the Number of Exhibitors of each Class in all Countries who have furnished Trade Circulars for the Collection formed by the Royal Commissioners.

Volume.	Class.	Number of Exhibitors.	Volume.	Class.	Number of Exhibitors.
1	I.	16	12	XVIII.	4
	II.	10		XIX.	6
	III.	16		XX.	22
	IV.	10		XXI.	6
2	V.	59	13, 14	XXII.	98
3	VI.	35	15	XXIII.	30
4	VII.	18		XXIV.	6
	VIII.	30		XXV.	9
5, 6, 7	IX.	81		XXVI.	50
8, 9, 10	X.	181	16	XXVII.	12
11	XII. and XV.	13		XXVIII.	17
	XIII.	2		XXIX.	33
	XVI.	34		XXX.	37
	XVII.	41		Total -	876

(Signed) H. W. Tyler,
Lieutenant Royal Engineers.

APPENDIX No. XXXIX.

Return showing the Number of Exhibitors and the Amount of Space
The Foreign Countries being arranged in the

	COUNTRY.	Class I. MINERAL PRODUCTS.			Class II. CHEMICAL PRODUCTS.			Class III. SUBSTANCES USED AS FOOD.			Class IV. VEGETABLE AND ANIMAL PRODUCTS.		
		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.	
			Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.
	America, United States of	39	339	298	9	55	40	62	420	366	27	271	145
	Austria	47	583	409	17	152	127	16	133	72	36	415	163
	Belgium	36	504	754	8	47	34	40	108	111	34	85	201
	China	-	20	100	-		-	-	160	100	-	35	100
	Denmark	-	-	-	1	5	-	3	9	7	1	2	6
	Egypt*	-	20	25	-	20	20	-	53	55	-	25	20
	France	26	325	500	55	611	908	84	659	704	98	908	1,808
Zollverein.	Prussia and States not mentioned below	47	590	102	18	125	30	32	339	143	43	326	321
	Bavaria	11	56	-	4	11	4	2	6	-	2	8	-
	Saxony	1	9	-	2	10	6	1	77	-	6	36	23
	Wurtemburgh	2	7	-	5	18	2	3	11	-	1	1	-
	Frankfort (Maine)	-	-	-	2	3	-	1	2	-	1	1	-
	Grand Duchy of Hesse	4	9	-	3	14	4	8	29	-	1	1	-
	Luxemburg	-	-	-	-	-	-	-	-	-	-	-	-
	Nassau	5	38	-	1	4	-	-	-	-	-	-	-
	Greece	8	312	-	2	3	-	9	20	-	9	8	-
	Hamburgh and other States of North Germany†	4	36	24	-	-	-	6	44	33	2	3	8
	Netherlands	1	6	6	6	10	15	12	34	33	7	42	89
	Persia	-	-	-	-	-	-	-	-	-	-	-	-
	Portugal	-	142	228	-	30	116	-	41	68	-	36	48
	Rome	5	13	10	-	-	-	-	-	-	6	12	19
	Russia	26	385	13	1	7	-	20	638	4	52	487	279
	Sardinia	2	3	2	10	29	16	8	50	5	17	59	34
	Spain	43	156	149	18	15	24	80	110	103	72	98	135
	Sweden and Norway	14	34	12	7	11	7	2	2	2	3	29	21
	Switzerland	2	4	7	2	2	4	3	7	10	5	14	37
	Tunis*	-	35	24	-	-	-	-	32	64	-	52	48
	Turkey*	-	120	120	-	54	54	-	138	98	-	190	282
	Tuscany	8	286	149	1	1	1	4	13	6	25	51	38
	States of South America‡	-	-	-	-	-	-	-	-	-	-	-	-
	Total of Foreign Countries	331	4,032	2,932	172	1,237	1,412	396	3,125	1,984	448	3,195	3,805
	United Kingdom of Great Britain and Ireland	474	6,319	14,479	134	1,137	1,585	136	2,475	4,190	119	2,501	3,084
	India,* Ceylon, and Eastern Archipelago	-	530	255	-	91	60	-	276	186	-	806	996
	North American Colonies	26	418	295	1	10	12	55	375	397	10	248	283
	Australian Colonies and New Zealand	28	148	327	7	23	36	27	136	192	32	200	362
	West India Colonies§	3	48	61	2	42	56	14	92	67	14	140	133
	Mediterranean Colonies	1	4	6	-	-	-	-	-	-	2	16	12
	South and West Africa, Mauritius, and St. Helena	4	11	8	2	12	36	13	37	27	23	70	220
	Total, United Kingdom and Dependencies	536	7,478	15,431	146	1,315	1,785	245	3,391	5,059	200	3,981	5,090
	GRAND TOTAL	867	11,510	18,363	318	2,552	3,197	641	6,516	7,043	648	7,176	8,895

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* The Number of Exhibitors in Turkey, Egypt, and Tunis, have not been inserted, as the articles exhibited were sent principally by the Governments of those Countries; and in the case of India by the Hon. East India Company.

APPENDIX No. XXXIX.

occupied by the several COUNTRIES in each of the THIRTY CLASSES.
order in which they stood in the Catalogue.

CLASS V. MACHINES FOR DIRECT USE.			CLASS VI. MANUFACTURING MACHINES & TOOLS.			CLASS VII. CIVIL ENGINEERING.			CLASS VIII. NAVAL AND MILITARY.			COUNTRY.	
Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.			
	Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		
18	1,133	250	16	306	400	8	1,270	358	10	225	208	America, United States of.	
5	225	-	1	9	-	-	-	-	13	33	23	Austria.	
9	2,587	2,008	15	792	418	4	242	295	22	736	896	Belgium.	
-	-	-	-	10	-	-	-	-	-	30	-	China.	
2	2	4	1	13	25	-	-	-	1	6	-	Denmark.	
-	-	-	-	-	-	-	-	-	-	-	-	Egypt.	
40	1,317	1,324	58	2,693	3,000	12	225	485	35	319	650	France.	
4	56	26	12	658	90	1	62	44	21	126	68	Prussia and States not mentioned below.	ZOLLVEREIN.
-	-	-	-	-	-	-	-	-	2	4	4	Bavaria.	
-	-	-	2	23	32	1	8	8	1	-	3	Saxony.	
-	-	-	2	85	80	-	-	-	2	24	-	Wurtemburgh.	
-	-	-	1	4	5	-	-	-	1	-	4	Frankfort (Maine).	
-	-	-	-	-	-	1	-	140	2	17	8	Grand Duchy of Hesse.	
-	-	-	-	-	-	-	-	-	-	-	-	Luxemburg.	
-	-	-	-	-	-	-	-	-	-	-	-	Nassau.	
-	-	-	-	-	-	-	-	-	-	-	-	Greece.	
-	-	-	4	33	7	-	-	-	4	56	10	Hamburgh and other States of North Germany.	
5	163	261	2	63	63	1	36	27	2	18	30	Netherlands.	
-	-	-	-	-	-	-	-	-	-		-	Persia.	
-	-	-	-	-	-	-	-	-	-	10	16	Portugal.	
-	-	-	-	-	-	-	-	-	-	-	-	Rome.	
1	6	14	2	282	74	-	-	-	8	140	196	Russia.	
2	64	3	-	-	-	-	-	-	-	-	-	Sardinia.	
-	-	-	3	-	27	-	-	-	8	40	35	Spain.	
1	76	-	1	2	5	2	8	8	7	88	79	Sweden and Norway.	
1	15	15	4	6	25	-	-	-	5	5	13	Switzerland.	
-	-	-	-	-	-	-	-	-	-	15	25	Tunis.	
-	-	-	-	-	-	-	-	-	-	53	93	Turkey.	
3	72	36	1	7	-	-	-	-	-	-	-	Tuscany.	
-	-	-	-	-	-	-	-	-	-	-	-	States of South America.	
91	5,716	3,941	125	4,986	4,251	30	1,851	1,365	144	1,945	2,361	Total of Foreign Countries.	
400	26,359	20,453	241	29,162	24,056	189	3,853	6,110	340	4,355	11,545	United Kingdom of Great Britain and Ireland.	
-	322	-	-	518	150	-	37	8	-	1,305	936	India, Ceylon, and Eastern Archipelago.	
6	309	51	-	-	-	1	18	10	7	64	29	North American Colonies.	
1	22	20	-	-	-	2	12	20	1	16	12	Australian Colonies and New Zealand.	
-	-	-	-	-	-	-	-	-	1	4	4	West India Colonies.	
-	-	-	-	-	-	-	-	-	-	-	-	Mediterranean Colonies.	
-	-	-	-	-	-	-	-	-	1	5	2	South and West Africa, Mauritius, and St. Helena.	
407	27,012	20,524	241	29,680	24,206	192	3,920	6,148	350	5,749	17,528	Total, United Kingdom and Dependencies.	
498	32,728	24,465	366	34,666	28,457	222	5,771	7,513	494	7,694	14,889	GRAND TOTAL.	

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† Hanover, Lubeck, Mecklenburg-Strelitz, Mecklenburg-Schwerin, and Oldenburg.
‡ Brazil, Chili, Mexico, New Granada, and Society Islands. § Including Bermuda, the Bahamas, and Jamaica.

Return showing the Number of Exhibitors and the Amount of Space
The Foreign Countries being arranged in the

COUNTRY.	CLASS IX. AGRICULTURAL IMPLEMENTS.			CLASS X. PHILOSOPHICAL INSTRUMENTS.			CLASS XI. COTTON.			CLASS XII. WOOLLEN AND WORSTED.		
	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.
America, United States of -	17	2,259	396	66	1,333	1,593	16	341	201	5	159	1,071
Austria - - - - -	6	501	-	46	417	370	10	128	145	50	886	5,571
Belgium - - - - -	14	768	689	22	313	501	3	40	66	15	602	1,718
China - - - - - -	-	-	-	-	-	-		20	300	-	-	-
Denmark - - - - -	1	29	22	9	54	66	-	-	-	-	-	-
Egypt* - - - - -	-	30	-	-	-	-	-	10	120	-	6	30
France - - - - - -	28	1,207	986	174	4,468	5,182	12	245	423	81	2,702	4,938
ZOLLVEREIN												
Prussia and States not mentioned below -	4	67	29	47	1,135	487	6	154	266	86	1,625	3,702
Bavaria - - - - -	-	-	-	14	106	39	1	84	140	-	-	-
Saxony - - - - -	-	-	-	11	278	37	10	171	109	42	802	1,091
Wurtemburgh - -	-	-	-	11	165	130	3	39	63	3	70	175
Frankfort (Maine) -	-	-	-	3	16	-	1	2	5	-	-	-
Grand Duchy of Hesse	-	-	-	8	121	96	-	-	-	2	35	77
Luxemburg - - -	-	-	-	-	-	-	-	-	-	1	-	160
Nassau - - - -	-	-	-	1	4	-	-	-	-	-	-	-
Greece - - - - -	-	-		-	-	-	-	-	-	-	-	-
Hamburgh and other States of North Germany† -	-	-	-	8	215	70	1	2	-	-	-	-
Netherlands - - -	3	88	88	9	76	88	-	-	-	6	112	363
Persia - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-
Portugal - - - - -	-	-	-	-	6	-	-	50	130	-	175	180
Rome - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-
Russia - - - - - -	-	-	-	7	140	76	2	54	16	12	140	309
Sardinia - - - - -	-	-	-	2	9	6	1	-	225	2	6	419
Spain - - - - - -	-	-	-	5	12	17	-	-	-	6	6	52
Sweden and Norway - -	-	-	-	10	119	141	1	-	56	1	-	80
Switzerland - - -	3	36	78	71	265	137	17	152	341	-	-	-
Tunis* - - - - - -	-	120	45	-	-	-	-	-	-	-	-	-
Turkey* - - - - -	-	90	130	-	-	-	-	108	340	-	110	230
Tuscany - - - - -	-	-	-	2	160	90	-	-	-	-	-	-
States of South America‡ -	-		-	-	-	-	-	-	-	-	-	-
Total of Foreign Countries	76	5,195	2,463	526	9.412	9,126	84	1,600	2,946	312	7,436	20,166
United Kingdom of Great Britain and Ireland§ -	258	25,898	10,415	563	7,535	14,812	64	1,744	7,200	337	5,050	39,237
India,* Ceylon, and Eastern Archipelago - - -	-	-	-	-	252	330	-	270	672	-	180	48
North American Colonies	11	195	156	4	16	14	-	-	-	6	233	125
Australian Colonies and New Zealand - - -	-	-	-	3	20	35	-	-	-	-	-	-
West India Colonies§ -	-	-	-	-	-	-	-	-	-	-	-	-
Mediterranean Colonies -	-	-	-	1	14	9	4	44	33	-	-	-
South and West Africa, Mauritius, and St. Helena	-	-	-	-	-	-	3	12	24	1	5	8
Total, United Kingdom and Dependencies - - -	269	26,093	10,571	571	7,837	15,210	71	2,070	7,929	344	5,468	39,418
GRAND TOTAL -	345	31,288	13,034	1,097	17,249	24,336	155	3,670	10,875	656	12,904	59,584

*The Number of Exhibitors in Turkey, Egypt, and Tunis, have not been inserted, as the articles exhibited were sent principally by the Governments of those Countries; and in the case of India by the Hon. East India Company.

occupied by the several Countries in each of the Thirty Classes—*continued.*
order in which they stood in the Catalogue.

Class XIII.			Class XIV.			Class XV.			Class XVI.			COUNTRY.	
SILK AND VELVET.			FLAX AND HEMP.			MIXED FABRICS, AND SHAWLS.			LEATHER, FUR, AND FEATHERS.				
Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.		
4	9	125	1	2	2	2	13	50	20	291	472	America, United States of.	
31	1,490	3,184	18	417	822	26	656	1,261	26	294	355	Austria.	
2	11	64	33	317	871	19	339	852	29	581	1,662	Belgium.	
-	25	500	-	20	300	-	150	500	-	-	-	China.	
-	-	-	-	-	-	1	16	6	4	11	93	Denmark.	
-	45	125	-	8	105	-	-	-	-	40	50	Egypt.	
68	2,008	5,427	32	674	794	71	3,050	6,130	76	1,100	4,529	France.	
40	1,217	1,557	41	526	266	56	1,590	2,234	42	453	466	Prussia and States not mentioned below.	ZOLLVEREIN.
3	22	10	3	3	389	4	81	105	1	-	77	Bavaria.	
1	48	119	6	286	241	24	801	1,043	3	87	90	Saxony.	
-	-	-	4	125	-	-	-	-	4	46	14	Wurtemburgh.	
-	-	-	-	-	-	-	-	-	3	35	26	Frankfort (Maine).	
-	-	-	2	3	-	-	-	-	8	333	268	Grand Duchy of Hesse.	
-	-	-	-	-	-	-	-	-	1	-	13	Luxemburg.	
-	-	-	-	-	-	-	-	-	-	-	-	Nassau.	
3	-	122	-	-	-	-	-	-	1	1	-	Greece.	
1	44	-	4	7	128	-	-	-	6	48	69	Hamburgh and other States of North Germany.	
2	13	31	8	50	153	-	-	-	11	25	102	Netherlands..	
-	-	-	-	-	-	-	-	-	-	-	-	Persia.	
-	80	150	-	65	100	-	30	70	-	30	70	Portugal.	
-	-	-	-	-	-	1	4	6	1	-	1	Rome.	
15	283	389	15	29	1,789	5	70	590	40	323	407	Russia.	
7	280	469	1	1	-	-	-	-	2	57	10	Sardinia.	
8	16	181	4	36	45	1	6	12	6	9	120	Spain.	
5	-	621	5	11	202	-	-	-	3	2	92	Sweden and Norway.	
13	636	899	13	196	115	14	265	221	15	203	287	Switzerland.	
-	50	90	-	30	50	-	48	48	-	172	147	Tunis.	
-	140	360	-	118	210	-	60	218	-	53	528	Turkey.	
1	13	3	1	13	6	4	80	30	1	1	-	Tuscany.	
-	-	-	-	-	-	-	-	-	-	-	-	States of South America.	
204	6,430	14,426	191	2,937	6,588	228	7,259	13,376	303	4,195	9,948	Total of Foreign Countries.	
80	1,602	4,507	98	3,663	15,840	Included in Class XII.			280	3,207	8,635	United Kingdom of Great Britain and Ireland.	
-	1,050	2,816	-	75	-	-	1,290	3,425	-	270	90	India, Ceylon, and Eastern Archipelago.	
-	-	-	5	35	16	-	-	-	16	457	242	North American Colonies.	
-	-	-	-	-	-	-	-	-	15	38	124	Australian Colonies and New Zealand	
-	-	-	-	-	-	-	-	-	-	-	-	West India Colonies.	
-	-	-	-	-	-	-	-	-	-	-	-	Mediterranean Colonies.	
-	-	-	1	3	14	-	-	-	2	1	8	South and West Africa, Mauritius, and St. Helena.	
80	2,652	7,323	104	3,776	15,870		1,290	3,425	313	3,973	9,099	Total, United Kingdom and Dependencies.	
284	9,082	21,749	295	6,713	22,458	228	8,549	16,801	616	8,168	19,047	GRAND TOTAL.	

† Hanover, Lubeck, Mecklenburg-Strelitz, Mecklenburg-Schwerin, and Oldenburg.

‡ Brazil, Chili, Mexico, New Granada, and Society Islands.

§ Including Bermuda, the Bahamas, and Jamaica.

Return showing the Number of Exhibitors and the Amount of Space
The Foreign Countries being arranged in the

COUNTRY.	Class XVII. STATIONERY AND BOOKBINDING.			Class XVIII. PRINTED AND DYED FABRICS.			Class XIX. TAPESTRY, CARPETS, &c.			Class XX. CLOTHING.		
	Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.	
		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.
America, United States of	29	156	368	2	234	140	5	36	522	15	238	171
Austria - - - - -	15	1,053	2,546	12	388	1207	13	227	10,031	13	110	192
Belgium - - - - -	13	209	437	10	321	692	50	998	8,626	7	71	68
China - - - - -	-	70	-	-	-	-	-	-	300	-	55	500
Denmark - - - - -	1	9	3	-	-	-	2	44	31	-	-	-
Egypt* - - - - -	-	25	20	-	-	-	-	50	75	-	40	75
France - - - - -	79	1,201	2,870	33	866	2,830	47	1,822	5,923	67	855	1,200
Zollverein. Prussia and States not mentioned below -	28	463	221	18	263	617	23	172	1,893	12	118	57
Bavaria - - -	6	104	66	-	-	-	2	1	6	1	17	-
Saxony - - - -	7	182	130	2	53	122	32	777	1,480	14	219	64
Wurtemburgh - -	5	53	48	3	24	35	6	76	342	-	-	-
Frankfort (Maine) -	4	24	-	-	-	-	1	-	200	-	-	-
Grand Duchy of Hesse	9	49	38	-	-	-	3	1	238	3	8	-
Luxemburg - - -	-	-	-	-	-	-	-	-	-	1	7	-
Nassau - - -	-	-	-	-	-	-	-	-	-	-	-	-
Greece - - - - -	-	-	-	-	-	-	-	-	-	1	24	21
Hamburgh and other States of North Germany† -	2	18	-	3	164	256	8	10	63	9	51	18
Netherlands - - -	8	51	18	2	6	6	4	39	972	-	-	-
Persia - - - - -	-	-	-	-	-	-	-	-	-	-	-	-
Portugal - - - - -	-	25	-	-	-	-	-	-	-	-	40	55
Rome - - - - -	2	15	5	-	-	-	-	-	-	-	-	-
Russia - - - - -	3	20	10	5	225	353	10	245	227	14	539	336
Sardinia - - - - -	2	4	2	-	-	-	3	-	68	2	28	41
Spain - - - - -	-	-	-	-	-	-	8	94	239	2	13	6
Sweden and Norway -	3	8	5	-	-	-	5	12	17	2	1	2
Switzerland - - - - -	2	8	8	14	300	1,270	24	920	3,757	1	10	15
Tunis* - - - - -	-	-	-	-	-	-	-	504	2,144	-	250	350
Turkey* - - - - -	-	40	110	-	-	-	-	210	2,580	-	180	650
Tuscany - - - - -	1	2	2	1	12	3	1	-	3	2	28	24
States of South America‡ -	-	-	-	-	-	-	-	-	-	-	-	-
Total of Foreign Countries	219	3,789	6,907	105	2,856	7,531	247	6,138	39,737	166	2,902	3,845
United Kingdom of Great Britain and Ireland -	176	1,289	3,633	97	2,536	11,880	292	2,028	86,343	238	3,468	5,281
India,* Ceylon, and Eastern Archipelago - - -	-	20	15	-	-	-	-	454	1,715	-	245	100
North American Colonies	6	20	19	-	-	-	1	6	14	7	202	238
Australian Colonies and New Zealand - - -	3	19	37	-	-	-	2	12	30	1	14	20
West India Colonies§ -	-	-	-	-	-	-	-	-	-	1	11	8
Mediterranean Colonies -	1	13	36	-	-	-	16	30	11	2	16	4
South and West Africa, Mauritius, and St. Helena	-	-	-	-	-	-	1	3	14	3	12	24
Total, United Kingdom and Dependencies - - -	186	1,361	3,740	97	2,536	11,880	312	2,533	88,127	252	3,968	5,675
Grand Total -	405	5,150	10,647	202	5,392	19,411	559	8,671	127,864	418	6,870	9,520

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* The Number of Exhibitors in Turkey, Egypt, and Tunis, have not been inserted, as the articles exhibited were sent principally by the Governments of those Countries; and in the case of India by the Hon. East India Company.

occupied by the several Countries in each of the Thirty Classes—*continued.*
order in which they stood in the Catalogue.

Class XXI. — Cutlery.			Class XXII. — Hardware.			Class XXIII. — Jewellery and Precious Metals.			Class XXIV. — Glass.			Country.
Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	Number of Exhibitors.	Superficial Feet. Hor.	Superficial Feet. Ver.	
7	70	155	24	436	629	3	13	-	3	128	44	America, United States of.
111	253	625	41	502	477	5	75	47	24	1,258	3,440	Austria.
1	2	-	28	426	579	5	26	24	5	135	91	Belgium.
-	-	-	-	-	-	-	20	-	-	-	-	China.
1	2	2	1	3	5	-	-	-	-	-	-	Denmark.
-	-	-	-	8	-	-	15	-	-	-	-	Egypt.
23	261	450	82	2,849	4,472	45	1,953	2,660	22	428	194	France.
26	378	984	45	635	1,690	23	241	113	10	154	68	Prussia and States not mentioned below. Zollverein.
-	-	-	2	21	-	3	4	1	2	20	30	Bavaria.
2	7	-	6	108	46	1	5	8	-	-	-	Saxony.
4	32	41	6	206	78	4	11	4	1	25	-	Wurtemburgh.
-	-	-	4	48	68	1	8	1	2	64	48	Frankfort (Maine).
-	-	-	2	31	33	2	4	11	-	-	-	Grand Duchy of Hesse.
-	-	-	1	4	16	-	-	-	-	-	-	Luxemburg.
-	-	-	-	-	-	-	-	-	-	-	-	Nassau.
-	-	-	-	-	-	-	-	-	-	-	-	Greece.
3	3	8	14	102	92	2	7	6	3	3	20	Hamburgh and other States of North Germany.
-	-	-	7	185	609	6	18	44	-	-	-	Netherlands.
-	-	-	-	-	-	-	-	-	-	-	-	Persia.
-	4	-	-	-	-	-	8	-	-	25	-	Portugal.
-	-	-	-	-	-	-	-	-	-	-	-	Rome.
3	7	18	2	11	29	7	1,360	153	-	-	-	Russia.
-	-	-	3	16	23	3	64	30	-	-	-	Sardinia.
-	-	-	4	347	9	3	9	40	-	-	-	Spain.
7	18	-	7	26	63	6	7	10	-	-	-	Sweden and Norway.
8	12	15	4	10	22	7	8	7	1	10	15	Switzerland.
-	-	-	-	35	43	-	-	-	-	-	-	Tunis.
-	42	63	-	93	25	-	21	30	-	10	112	Turkey.
-	-	-	2	10	19	3	7	5	-	-	-	Tuscany.
-	-	-	-	-	-	-	-	-	-	-	-	States of South America.
196	1,091	2,361	285	6,112	9,027	129	3,884	3,194	73	2,260	4,062	Total of Foreign Countries.
43‖	534	717	624	15,305	25,965	122	3,100	2,768	93	3,168	13,194	United Kingdom of Great Britain and Ireland.
-	150	20	-	245	200	-	325	60	-	62	-	India, Ceylon, and Eastern Archipelago.
3	56	27	6	122	73	2	3	1	-	-	-	North American Colonies.
-	-	-	-	-	-	-	-	-	-	-	-	Australian Colonies and New Zealand.
-	-	-	2	20	32	-	-	-	-	-	-	West India Colonies.
-	-	-	-	-	-	4	21	20	-	-	-	Mediterranean Colonies.
1	1	7	-	-	-	-	-	-	-	-	-	South and West Africa, Mauritius, and St. Helena.
47	741	771	632	15,692	26,270	128	3,449	2,849	93	3,230	13,194	Total, United Kingdom and Dependencies.
243	1,832	3,132	917	21,804	35,297	257	7,333	6,043	166	5,490	17,256	**Grand Total.**

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† Hanover, Lubeck, Mecklenburg-Strelitz, Mecklenburg-Schwerin, and Oldenburg.

‡ Brazil, Chili, Mexico, New Granada, and Society Islands.

§ Including Bermuda, the Bahamas, and Jamaica.

‖ The small number of Exhibitors in the British portion of this Class arose from the whole of the Sheffield Exhibitors having been grouped together under Class XXII.

Return showing the Number of Exhibitors and the Amount of Space
The Foreign Countries being arranged in the

COUNTRY.	CLASS XXV. POTTERY.			CLASS XXVI. FURNITURE.			CLASS XXVII. MINERAL MANUFACTURES.			CLASS XXVIII. ANIMAL & VEGETABLE MANUFACTURES.		
	Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.	
		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		Hor.	Ver.
America, United States of	1	23	28	20	620	703	2	71	6	11	1,618	1,150
Austria	1	800	59	22	1,039	2,143	6	67	59	19	110	444
Belgium	4	498	327	17	557	3,058	8	117	253	3	58	42
China	-	350	100	-	400	100	-	-	-	-	100	100
Denmark	1	3	3	2	19	55	-	-	-	1	1	1
Egypt*	-	10	-	-	32	-	-	-	-	-	10	23
France	40	1,494	2,404	69	5,376	7,820	19	580	946	36	554	1,184
ZOLLVEREIN. Prussia and States not mentioned below	10	379	242	36	539	898	11	169	104	16	115	170
Bavaria	1	50	48	10	126	224	2	7	-	5	57	59
Saxony	2	163	69	1	5	4	-	-	-	1	1	-
Wurtemburgh	-	-	-	3	7	54	1	33	48	3	28	-
Frankfort (Maine)	-	-	-	-	-	-	-	-	-	1	15	-
Grand Duchy of Hesse	-	-	-	4	20	38	-	-	-	3	42	33
Luxemburg	-	-	-	1	-	18	1	15	-	-	-	-
Nassau	-	-	-	-	-	-	3	22	10	-	-	-
Greece	-	-	-	-	-	-	-	-	-	-	-	-
Hamburgh and other States of North Germany †	-	-	-	25	372	474	1	3	-	6	261	22
Netherlands	-	-	-	1	18	67	2	23	16	4	42	48
Persia	-	-	-	-	-	-	-	-	-	-	-	-
Portugal	-	30	-	-	50	35	-	-	-	-	-	-
Rome	-	-	-	-	-	-	1	20	56	-	-	-
Russia	-	-	-	1	1	3	3	96	53	-	-	-
Sardinia	-	-	-	13	340	397	1	33	15	2	16	8
Spain	-	-	-	2	8	16	2	4	4	-	-	-
Sweden and Norway	-	-	-	8	52	136	5	73	145	1	5	-
Switzerland	1	56	70	2	14	11	-	-	-	5	162	269
Tunis*	-	24	16	-	10	12	-	-	-	-	-	-
Turkey*	-	31	80	-	-	-	-	-	-	-	-	-
Tuscany	1	13	9	3	35	29	8	140	106	3	8	27
States of South America ‡	-	-	-	-	-	-	-	-	-	-	-	-
Total of Foreign Countries	62	3,924	3,455	240	9,640	16,295	76	1,473	1,821	120	3,203	3,580
United Kingdom of Great Britain and Ireland	60	5,184	4,272	346	11,555	43,680	127	3,951	7,028	139	1,961	3,181
India,* Ceylon, and Eastern Archipelago	-	240	-	-	480	112	-	106	30	-	480	120
North American Colonies	-	-	-	9	700	412	1	5	6	2	33	1
Australian Colonies and New Zealand	-	-	-	5	48	120	-	-	-	3	18	71
West India Colonies §	-	-	-	-	-	-	-	-	-	2	4	4
Mediterranean Colonies	-	-	-	-	-	-	1	45	-	1	12	4
South and West Africa, Mauritius, and St. Helena	-	-	-	2	8	17	-	-	-	-	-	-
Total, United Kingdom and Dependencies	60	5,424	4,272	362	12,791	44,341	129	4,107	7,064	147	2,508	3,381
GRAND TOTAL	122	9,348	7,727	602	22,431	60,636	205	5,580	8,885	267	5,711	6,961

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* The Number of Exhibitors in Turkey, Egypt, and Tunis, have not been inserted, as the articles exhibited were sent principally by the Governments of those Countries; and in the case of India by the Hon. East India Company.

occupied by the several Countries in each of the Thirty Classes—*continued.*
order in which they stood in the Catalogue.

CLASS XXIX. MISCELLANEOUS.			CLASS XXX. FINE ARTS.			TOTAL. IN THIRTY CLASSES.			COUNTRY.	
Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Superficial Feet.		Number of Exhibitors.	Amount of Space in Superficial Feet.			
	Hor.	Ver.		Hor.	Ver.		Hor.	Ver.		
42	473	399	15	322	81	499	12,864	10,371	America, United States of.	
52	944	886	49	781	992	731	13,946	35,650	Austria.	
13	188	166	37	953	356	506	12,631	25,859	Belgium.	
-	560	1,500	-	350	500	30	2,375	5,000	China.	
1	6	2	5	34	150	39	268	481	Denmark.	
-	13	-	-	-	-	-	460	743	Egypt.	
84	1,440	2,258	114	2,803	7,174	1,710	44,993	80,173	France.	
57	858	989	57	1,222	882	872	14,755	18,749	Prussia and States not mentioned below.	ZOLLVEREIN.
7	132	87	11	154	352	999	1,074	1,641	Bavaria.	
4	58	43	7	39	80	190	4,253	4,838	Saxony.	
29	551	345	4	98	114	109	1,735	1,573	Wurtemburgh.	
4	19	12	3	7	6	33	248	375	Frankfort (Maine).	
14	108	103	1	7	-	80	832	1,087	Grand Duchy of Hesse.	
-	-	-	-	-	-	6	26	207	Luxemburg.	
3	39	-	-	-	-	13	107	10	Nassau.	
-	-	-	3	1	13	36	359	156	Greece.	
10	41	135	8	102	349	134	1,625	1,792	Hamburgh and other States of North Germany.	
1	9	12	3	6	7	113	1,133	3,148	Netherlands.	
12	186	210	-	-	-	12	186	210	Persia.	
-	50	75	-	-	-	157	927	1,341	Portugal.	
1	-	1	35	213	291	52	277	389	Rome.	
4	49	15	5	53	65	263	5,490	5,418	Russia.	
7	10	77	5	1	14	95	1,070	1,864	Sardinia.	
3	2	9	8	74	68	286	1,055	1,291	Spain	
7	19	17	4	9	31	117	612	1,752	Sweden and Norway.	
7	19	45	19	70	81	263	3,405	7,774	Switzerland.	
-	121	152	-	-	-	-	1,498	3,258	Tunis.	
-	202	320	-	-	-	-	2,063	6,633	Turkey.	
2	14	3	21	242	280	99	1,208	869	Tuscany.	
12	180	180	-	-	-	12	180	180	States of South America.	
376	6,291	8,041	414	7,541	11,886	6,556	131,655	222,832	Total of Foreign Countries.	
283	3,693	4,478	508	6,643	12,762	6,861	189,275	411,340	United Kingdom of Great Britain and Ireland.	
-	575	-	-	1,000	132	-	11,604	12,476	India, Ceylon, and Eastern Archipelago.	
8	357	374	2	4	5	195	3,886	2,800	North American Colonies.	
24	101	310	1	8	24	155	835	1,740	Australian Colonies and New Zealand.	
16	381	436	-	-	-	55	742	801	West India Colonies.	
2	3	7	5	96	177	40	314	319	Mediterranean Colonies.	
18	223	426	-	-	-	75	403	835	South and West Africa, Mauritius, and St. Helena.	
351	5,283	6,031	516	7,751	13,100	7,381	207,059	430,311	Total, United Kingdom and Dependencies.	
727	11,574	14,072	930	15,292	24,986	13,937	338,714	653,143	GRAND TOTAL.	

† Hanover, Lubeck, Mecklenburg-Strelitz, Mecklenburg-Schwerin, and Oldenburg.
‡ Brazil, Chili, Mexico, New Granada, and Society Islands. § Including Bermuda, the Bahamas, and Jamaica.

R. G. WYLDE.

APPENDIX No. XL.

[Corrected

ABSTRACT of the OPERATIONS of each LOCA

In this Table the population has been taken from the last Census Returns, corrected in many instances by the Loc Committees, the district over which the operations of the Local Committees extended not being in many cases co-extensi with the registration districts

The number of Promoters and Subscribers could only be ascertained in a few instances: from the cases that are known, would appear that 8,111 persons subscribed £14,403 16*s.* 7*d.*, and that the average subscription of each person w. £1 15*s.* 6*d.*

The money columns are from the books of the Royal Commission, and, from differences in the modes of keeping the account

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount Reported to Commission.			Amount Paid to the Royal Commissioners.			Amount retained—for Local Expenses			Demands for Space by Local Committees.		Numl of Appl cant
														Horiz.	Vertical	
					£.	s.	d.	£.	s.	d.	£.	s.	d.	Feet.	Feet.	
METROPOLIS.																
City	P.B. & M.B.	127,869	This information could only be ascertained in a few instances.		26,054	18	9	24,211	5	4	1,843	13	5			
Ladies					677	11	0	581	0	0	96	11	0			
Westminster	P.C.	241,611			6,840	5	5	6,156	4	10	1,525	3	1			
Ladies					841	2	6									
Brentford	T.	8,870		50	77	9	6	55	19	5	21	10	1			
Chelsea	P.	56,538			200	0	6	140	0	0	60	0	6			
Chiswick	P.	6,303			86	19	7	78	3	7	8	16	0			
Finsbury	P.B.	323,772		156	313	0	6	205	4	0	107	16	6			
Greenwich	P.B.	105,784			276	3	0	196	1	5	80	1	7			
Hammersmith	P.	17,760			52	15	0	38	1	4	14	13	8	164,189†	90,000	3,96
Hampstead	P.	11,986			52	17	2	25	0	0	27	17	2			
Kensington	P.	44,053			357	9	0	299	13	0	57	16	0			
Marylebone	P.B.	370,957		614	1,257	10	4	547	13	3	709	17	1			
Poplar	P.	28,384			73	14	3	65	8	6	8	5	9			
Putney	P.	5,280														
Richmond	P.	9,255														
Society of Arts					1,147	10	6	1,086	3	8	61	6	10			
South London				534	940	13	0	619	2	6	321	10	6			
Southwark	P.B.	172,863			458	7	0	342	8	0	115	19	0			
Tower Hamlets	P.B.	510,727			314	11	8	233	7	1	81	4	7			
Woolwich	P.	32,367			282	14	0	225	0	0	57	14	0			
PROVINCES.																
Aberdeen	P.C.	71,973			312	7	0	173	4	0	139	3	0	1,238	127	63
Abingdon	M.B. & P.B.	5,954		11	15	9	6	9	2	6	6	7	0	278	81	8
Alloa	T.	6,676			41	16	0	41	16	0				22	5	2
Alton	T.	2,878														
Arbroath	P.B.	17,008		36	22	4	0	18	0	0	4	4	0	83	500	4
Ashborne	T.	2,154			5	13	0	1	11	0	4	2	0			
Ashburton	P.B.	3,432	30	22	9	3	0	7	0	0	2	3	0	72	6	4
Ashford	T.	4,092												48	78	3
Ashton-under-Lyne	M.B.	29,791	1											12	4	3
Aylesbury	P.B.	6,003												47		7
Bakewell	T.	2,217		3	8	0	0				8	0	0	149		8
Banbury	P.B. & M.B.	8,875			53	10	0	45	14	0	7	16	0	1,524	375	20

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* In this column C. stands for Chapelry; M.B. for Municipal Borough; M.C. for Municipal City; P.

† The Commission did not interfere with the details of the space and arrangement of the Metropolitan Committe

1st May 1852.]

APPENDIX No. XL.

COMMITTEE throughout the UNITED KINGDOM.

the amounts in some cases differ from those furnished by the Local Committees. With regard to the amount retained for local expenses, that only is given of which the Royal Commissioners were informed.

Those persons to whom space was allotted were not necessarily all Exhibitors, but the number of actual Exhibitors [6,861] was very nearly the same as that of the original allottees [6,924]. The horizontal space actually occupied by the goods, as measured during the Exhibition, was 189,275 square feet, or very little less than that originally allotted, viz., 201,480 square feet, as shown by the Table.

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical.					
Feet.	Feet					
						METROPOLIS.
75,655	85,111	3,074	Montefiore, Sir M.	Cattley, Rev. S. R. Wire, D. W.	Cattley, Rev. S. R. Wire, D. W.	City.
				Stone, D. H. Smedley, F.	Marshall, Rev. C. Starling, W. D.	Ladies.
			Smedley, F.	Brunel, I. K.	Drew, G. H.	Westminster.
				Colnaghi, D. Smedley, F.	Howard, Lord E. Dufferin, Lord Malcolm, Colonel	Ladies.
			Montgomery, J.	Montgomery, J.	Clarke, G.	Brentford.
				Fielder, J. Murray, D. Challacombe, N.	Rudge, Rev. E. Lahee, C.	Chelsea.
			Bowerbank, Rev. T. F.	Leigh, T. H.	Wylde, W. H.	Chiswick.
			Hopwood, J. S.	Taylor, J. R.	James, E. W. Hopwood, C. H.	Finsbury.
			Adam, Sir C. Harding, J.	Purvis, P. Wade, J.	Nicholls, J. W. Glaisher, J.	Greenwich.
				Halford, E.	Roberts, A. J.	Hammersmith.
			Turner, T.	Hoare, R.	Paxon, W.	Hampstead.
			Lascelles, W. S.	Garrard, S.	Morris, J.	Kensington.
			Graham, P.	Hall, Sir B., Bt., M.P. Lord D. Stuart, M.P. Plowden, W. C., M.P. Bridgman, F. H. Healey, F.	Greenwell, W. E.	Marylebone.
			Redpath, C. J.		Bain, W. P. Coleman, E.	Poplar.
			East, Rev. E., M.A.		Fulton, H. H.	Putney.
			Penrhyn, E.		Chapman, W.	Richmond.
					Grove, G.	Society of Arts.
			Bean, W.	Field, J. Baker, G.	Taylor, R. James, J.	South London.
			Simpson, T. B.	Simpson, T. B.	Sturmy, H.	Southwark.
			Clay, Sir W., Bart.	Kemp, G. T.	Humphreys, J.	Tower Hamlets.
			Carlile, Dr. J.	Roff, H. B.	Graham, G. H.	Woolwich.
						PROVINCES.
511	181	57	Henry, George	Reid, W. L.	Reid, W. L.	Aberdeen.
56	32	3	Tomkins, John Graham, W. Hyde, J., Jun.	Hammett, J. P.	Bartlett, A. D.	Abingdon.
5	756	7	Paton, James	Wingate, Alex.	Paton, Alex.	Alloa.
24	-	1			Clements, J. W.	Alton.
36	510	13	Johnston, W.	Dickson, J. A.	Macdonald, J.	Arbroath.
			Bradley, S.	Hobson, W.	Bamford, J.	Ashborne.
52	6	5	Caunter, R.	Yeo, Dr. D.	Yeo, Dr. D.	Ashburton.
48	78	3	Alcock, Rev. J.		Whitfield, W.	Ashford.
16	7	3	Heginbottom, W.		Gartside, H.	Ashton-under Lyne.
16	-	5	Lee, Dr. J.		Dell, T.	Aylesbury.
180	-	7	Cavendish, Hon. J.		Barker, James	Bakewell.
433	518	13	Goffe, R.	Cobb, Edward	Austin, J. B	Banbury.

Parish; P.B. for Parliamentary Borough; P.C. for Parliamentary City; T. for Township; V. for Village.
Space was granted to them in a body, and they subdivided the allotment among the exhibitors of their District.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.			Amount Paid to the Royal Commissioners.			Amount retained—for Local Expenses.			Demands for Space by Local Committees.		Number of Applicants.
														Horiz.	Vertical	
PROVINCES—*cont.*					£.	s.	d.	£.	s.	d.	£.	s.	d.	Feet.	Feet.	
Barnard Castle -	T.	4,608			13	14	0	11	11	0	2	3	0	4	311	2
Barnsley - -	T.	13,437			142	0	0	132	0	0	10	0	0	912	1,292	16
Barnstaple - -	M. B.	11,371			37	8	6	30	15	0	6	13	6	410	4	5
Basingstoke - -	M. B.	4,263			136	17	0	126	14	0	10	3	0	130	60	2
Bath - - -	M. C.	54,248	126		200	0	0	196	19	0	3	1	0	2,344	184	47
Batley - - -	T.	9,308			133	11	6	133	11	6				305	18	12
Bedford - -	M. B.	11,691			115	13	2	115	13	2				5,363	67	9
Belfast - - -	P. B.	99,660	13		581	0	0	300	0	0	281	0	0	5,469		33
Belper - - -	T.	10,082	12	29	65	5	0	60	0	0	5	5	0	24	60	2
Berwick-upon-Tweed - -	M. B.	15,094		38	26	12	6	24	11	10	2	0	8	36		2
Beverley - -	M. B.	8,915			96	8	0	93	3	6	3	4	6	9,734		7
Bideford - -	M. B.	5,775			15	15	0	10	0	0	5	15	0	307		8
Bingley, Yorkshire	T.	5,019			152	10	0	152	10	0				38		2
Birmingham -	M. B.	232,841	34		896	14	0	500	0	0	396	14	0	15895	6,267	292
Bishops Stortford	T.	5,280												36		1
Blackburn - -	M. B.	46,536		500	820	1	5	680	0	0	140	1	5†	612	405	8
Bodmin - -	M. B.	4,327	30		37	9	0	35	18	0	1	11	0	5		3
Bolton, Lancashire	M. B.	61,171		1,006	725	11	8	664	11	4	61	0	4	3,094	733	19
Boston - -	P. B.	16,984		43	40	0	0	26	10	5	13	9	7	592	48	7
Bradford, Yorkshire - -	M. B.	103,778	92		1,604	11	1	1,100	0	0	504	11	1	5,942	8,490	73
Bradford, Wilts -	T.	4,240	45	40	35	12	6	31	2	6	4	10	0	49	16	3
Braintree - -	T.	4,500			9	12	0	8	7	8	1	4	4			
Brampton - -	T.	3,074		15	13	18	0	13	3	5	0	14	7			
Brecon - - -					70	4	0	70	4	0						
Brentwood - -	C.	2,205		12	6	11	0	6	11	0				21		2
Bridgenorth -	M. B.	7,610	26	30	21	1	0	21	1	0						
Bridgewater -	M. B.	10,331			27	6	0	23	16	0	3	10	0	174	4	6
Bridport - -	T. & M. B.	7,556		67	71	0	0	50	0	0	21	0	0	203	300	12
Brighton -	P. B.	69,673			183	0	0	150	0	0	33	0	0	166	12	23
Bristol - -	M. C.	137,328	65	143	788	5	6	650	0	0	138	5	6	2,871	3,160	62
Bromsgrove -	T.	10,308	1													2
Buckingham -	M. B.	4,020			20	0	0	20	0	0				9	22	5
Burnley -	T.	14,706												30	100	1
Burton-on-Trent	T.	7,934		14	213	3	0	213	3	0				3		1
Bury St. Edmunds	M. B.	13,903	1	29	31	4	0	20	0	0	11	4	0	156		11
Bury, Lancashire	P. B.	31,262		11	84	2	0	66	11	6	17	10	6	462		3
Buxton - -	T.	1,235			7	0	0	6	15	11	0	4	1	20		2
Calcutta - -					9	11	8	9	11	8						
Camborne -	T.	6,547			42	5	6	37	5	6	5	0	0			
Cambridge University - -		1,212	29	47	138	19	0	132	2	0	6	17	0			
Cambridge Town	M. B.	26,603	102	253	186	14	6	170	6	0	16	8	6	800	40	15
Canterbury - -	M. C.	18,398	41	100	79	5	6	70	0	0	9	5	6	32		2
Cardiff - - -	M. B.	18,294	52		96	0	0	96	0	0				474	7	7
Carlisle - -	M. C.	26,305	22	210	260	13	6	200	0	0	60	13	6	790	479	11
Carnarvon - -	M. B.	8,670	1											409	198	19

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* In this column C. stands for Chapelry; M. B. for Municipal Borough; M. C. for Municipal City; P. for

† Including £20 for printing chargeable to

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical.					
Feet.	Feet.					
2	297	2	Dugard, Rev. G.	Monkhouse, J. C.	Monkhouse, J. C.	Barnard Castle.
593	1,350	16	Newman, E.	Newman, E.	Newman, E.	Barnsley.
150	4	4	Fisher, J. M.	Marshall, J.	Cotton, R. W. Miller, J. M.	Barnstaple.
4	60	2	Cottle, Robert Hulbert, R. S.	Lamb, George Hillier, W. G.	Shebbeare, J. C.	Basingstoke.
1,169	406	46	Dowding, F.	Sutcliffe, W.	Tunstall, J., M.D. Akerman, W.	Bath.
120	100	6	Burnley, S.	Sheard, George	Jubb, Samuel	Batley.
1,494	95	15	Palgrave, C. F.	Barnard, T.	Pulley, H., Jun.	Bedford.
3,547	8,284	60	Stirling, James	Bristow, J.	Macadam, J., Jun.	Belfast.
24	60	1	Ward, John	Lowe, Edward Midworth, R.	Ingle, Thomas	Belper.
32	12	3	Smith, Capt. W., R.N.	Mallock, Andrew	Weatherhead, R. B.	Berwick-upon-Tweed.
871	6	9	Tigar, P.	Crust, Thomas	Crust, Thomas	Beverley.
103	66	5	Evans, Thomas	Ley, H. O.	Tardrew, H. Carter, C., Jun.	Bideford.
12	24	2	Cheddle, Rev. J.	Milligan, W.	Passavant, P.	Bingley, Yorksh.
7,383	8,737	258	Lucy, William	Moilliet, James	Marshall, W. P.	Birmingham.
6	-	1	Fairman, Joseph		Glasscock, J. L. Simpson, T.	Bishops Stortford
239	412	14	Sparrow, T.	Fielden, Joseph Hargreaves, J.	Clark, W. J. D.	Blackburn.
5		3	Collins, J. B. Spiller, J. B.	Pethybridge, J.	Bray, R.	Bodmin.
1,721	1,281	14	Gray, W. Rushton, T. L.	Barlow, R. S. Darbyshire, J.	French, G. J.	Bolton, Lancashire.
144	58	8	Staniland, M.	Wright, C.	Bontoft, J. A.	Boston.
3,163	7,891	62	Forbes, H.	Laycock, S.	Tee, S. L. Taylor, George.	Bradford, Yorkshire.
68	-	5	Edmonds, E.	Spencer, George	Merrick, W.	Bradford, Wilts.
			Veley, A. C.	Benwell, J. P.	Cunnington, A.	Braintree.
			Carrick, W.	Coulthard, G.	Graham, John	Brampton.
6	-	1	Branfoot, Dr. J. H.	Branfoot, Dr. J. H.	Branfoot, Dr. J. H.	Brentwood.
				Jones, W.	Jones, W.	Bridgenorth.
40	100	5	Ford, Robert	Smith, R., Jun.	Smith, R., Jun.	Bridgewater.
103	150	12	Barnicott, J. Swain, W., Jun.	Colfox, W., Jun.	Colfox, Thos.	Bridport.
127	132	29	Cheeseman, G., Jun. Scott, M. D.	Lambert, W.	Clarke, Somers	Brighton.
1,516	3,227	65	Langton, W. H. G.	Haberfield, Sir J. K.	Wilkson, J.	Bristol.
5	10	2			Maund, B.	Bromsgrove.
9	19	4	Chandler, R.	Parrott, E. Hearn, Thos.	Nelson, Geo.	Buckingham.
30	100	1			Heelis, J.	Burnley.
4	-	1	Richardson, J.	Peel, R. J.	Richardson, J.	Burton-on-Trent.
52	42	9	Goldsmith, D. Salmon, W.	Holmes, J. H. Salmon, W.	Holmes, J. H.	Bury St. Edmunds
164	-	2	Openshaw, W.	Walker, O. O.	Norris, W. H.	Bury, Lancashire.
20	-	2	Heacock, P.	Bright, Selim	Bright, Selim	Buxton.
			Bickford, J. S.	Grylls, J. W.	Bickford, J. S. Budge, J. H.	Camborne.
			Cartmell, Dr. J.	Cartmell, Dr. J.	Babington, C. C.	Cambridge University.
301	42	11	Foster, H. S. Warren, W.	Warren, W.	Harris, H. H. Gotobed, H.	Cambridge Town.
-	69	2	Furley, G. Cooper, H. Brent, J.	Furley, W. H.	Aris, J.	Canterbury.
211	232	8	Nicholl, Rt. Hon. J.	Williams, C.	Bird, H.	Cardiff.
235	800	12	Rome, Joseph Hewson, J.	Nanson, J.	Nanson, J.	Carlisle.
21	198	10	Jones, F. W.		Williams, R., Jun.	Carnarvon.

Parish: P. B. for Parliamentary Borough; P. C. for Parliamentary City; T. for Township; V. for Village.
General Expenses of the Commission.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission	Number of Subscribers reported.	Amount reported to Commission. £.	s.	d.	Amount Paid to the Royal Commissioners. £.	s.	d.	Amount retained—for Local Expenses. £.	s.	d.	Demands for Space by Local Committees. Horz.	Vertical.	Number of Applicants.
					£.	s.	d.	£.	s.	d.	£.	s.	d.	Feet.	Feet.	
PROVINCES—*cont.*																
Chatham - -	P. B.	28,424	2		75	3	8	63	4	11	11	18	9			
Cheadle - -	T.	3,746												38	66	3
Cheltenham -	P. B.	35,062			164	14	6	135	10	7	29	3	11	437	528	12
Chelmsford - -	T.	6,033			96	4	6	83	14	0	12	10	6	1,701	36	14
Cheshunt - -	P.	5,579		3	8	0	0	8	0	0				7	4	3
Chester - -	M. C.	27,766	1		62	12	0	62	10	0	0	2	0	83	63	10
Chesterfield - -	T.	7,101												346	102	7
Chichester - -	M. C.	8,662			104	10	6	98	2	2	6	8	4	163	43	5
Chippenham -	M. B.	1,707			22	7	0	20	0	0	2	7	0	51	6	4
Chipping Norton	M. B.	2,932														
Cockermouth -	P. B.	7,275			11	3	0	11	3	0				12	-	2
Coggeshall - -	T.	3,580		71	27	0	5	23	10	0	3	10	5	54	-	3
Colchester. - -	M. B.	19,443		42	77	2	2	60	0	0	17	2	2	268	3	17
Colne - - -	C.	21,764			20	0	0	20	0	0				88	-	2
Congleton - -	M. B.	10,520	1	55	29	18	0	28	1	2	1	16	10			
Cork - - -	-	86,485	18		50	0	0	50	0	0				470	221	15
Coventry - -	M. C.	37,711	72		112	0	0	112	0	0				740		27
Crayford - -	-				13	2	0	13	2	0						
Crewkerne - -	T.	4,498		33	13	19	6	10	0	0	3	19	6	108	32	17
Cricklade - -	P. B.	35,719												1	-	1
Cupar - - -	P. B.	5,685			24	5	6	18	10	0	5	15	6			
Dalkeith - -	T.	5,010			7	18	0	6	3	6	1	14	6	26	-	1
Darlington -	T.	11,582		30	66	14	11	50	0	0	16	14	11	330	7	15
Deal - - -	M. B.	7,067		10	5	17	0	5	17	0				14	-	2
Derby - -	M. B.	40,609	3		342	4	5	265	11	8	76	12	9	2,542	418	39
Devizes - -	M. B.	6,554			17	0	0	13	4	6	3	15	6	492	54	8
Devonport - -	M. B.	38,180	45		84	11	0	65	0	0	19	11	0	308	18	9
Doncaster - -	M. B.	12,052	7	143	123	13	0	123	13	0				113	-	2
Dorchester - -	M. B.	6,394	12	14	14	14	0	14	14	0				55	81	3
Dorking - -	-				83	18	6	83	18	6						
Dover - - -	M. B.	22,244	8	127	106	15	0	73	0	0	33	15	0	92	-	9
Driffield, Great -	T.	3,792			35	0	0	35	0	0				20	..	1
Dublin - - -	M. C.	254,850	104	69	406	4	0	5	0	0	401	4	0	8,533	3,231	192
Dudley - -	P. B.	37,962	34		259	8	0	246	0	0	13	8	0	2,588	66	10
Dumbarton - -	M. B.	4,590			84	6	6	80	0	0	4	6	6			
Dumfries - -	P. B.	13,179			140	0	0	140	0	0				685	85	14
Dunbar - -	M. B.	2,965			12	0	6	11	9	8	0	10	10	2	-	1
Dundee - -	M. B.	78,829			202	9	0	100	0	0	102	9	0	1,254	-	23
Dunfermline -	M. B.	8,606			155	14	6	133	1	0	22	13	6	184	1,161	8
Dunmow - -	P.	3,235		83	15	8	6	10	0	0	5	8	6	2	18	3
Dunstable - -	T.	3,589			13	8	11	11	6	9	2	2	2	8	-	3
Durham - -	M. B.	13,168		181	170	10	4	150	0	0	20	10	4	56	657	4
Edinburgh - -	M. C.	66,734			909	3	4	400	0	0	509	3	4	7,813	6,041	157
Egham - -	-				83	17	0	83	17	0						
Elgin - - -	M. B.	5,383		21	29	12	0	21	14	4	7	17	8	258	30	6
Exeter - - -	M. C.	40,688	63		90	0	0	90	0	0				1,040	256	38
Exmouth - -	T.	5,103	1		17	15	0	17	15	0				13	-	1
Falkirk - -	P. B.	8,752		12	17	2	0	3	5	1	13	16	11	407	50	7
Falmouth (Penryn).	P. & M. B.	8,078	117		34	9	0	30	0	0	4	9	0	496	150	20
Faringdon - -	P.	3,122			6	5	6	2	16	9	3	8	9	87	-	2

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[*] In this column C. stands for Chapelry; M. B. for Municipal Borough; M. for Municipal City; P. for

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical					
Feet.	Feet.					
			Ruck, T.	Winch, E.	Limbert, B. T. Hills, Thomas	Chatham.
38	66	3	Blackburne, Capt.		Cattlow, J.	Cheadle.
249	778	9	Russell, G.	Ridler, W.	Gwinnett, W. H.	Cheltenham.
799	36	16	Parker, J.	Tufnel, W. M.	Meggy, G. Chancellor, F.	Chelmsford.
7	3	3	Preston, Rev. M.	Chaplin, J. B.	Chaplin, J. B.	Cheshunt.
208	28	14	Williams, J.	Maddock, T. F.	Maddock, T. F.	Chester.
163	102	9	Cottingham, J.G.		Roberts, J. Blythe, A. T.	Chesterfield.
88	56	8	Gates, James	Gates, James	Mason, W. H.	Chichester.
32	49	4	Bailey, C.	Alexander, T.	Wharry, J.	Chippenham.
338	0	2	Bliss, W.		Bliss, W.	Chipping Norton.
18	-	3	Earie, Rev. W.	Cooper, J.	Benson, R.	Cockermouth.
27	27	3	Pattison, F. U.	Whitmore, H.	Clemance, J. A.	Coggeshall.
58	33	14	Williams, E.	Bawtree, J., Jun.	Hayward, R.	Colchester.
88	-	-	Foulds, J.	Hartley, H. W.	Hartley, H. W.	Colne.
24	-	1	Hogg, H. Hadfield, W.	Adams, F.	Latham, J.	Congleton.
244	112	22	Skea, J. Lambkin, J.		Feath, G. C.	Cork.
356	-	26	Dunn, B.		Skidmore, F. A. Caldicott, R., Jun. Buckley, N.	Coventry.
						Crayford.
52	89	12	Sparks, W.	Wheadon, J.	Pearce, Joseph	Crewkerne.
1	-	1	Taylor, T.		Lovett, James	Cricklade.
			Nicol, R.	Duncan, W.	Duncan, W.	Cupar.
12	24	1	Moncrieff, R. S.	Paterson, J.	Mitchell, A.	Dalkeith.
163	4		Mewburn, F.	Backhouse, J. C.	Mason, G. Humble, S.	Darlington.
8	-	2	Hughes, G.	Reaks, T.	Reaks, T.	Deal.
1,200	1,000	37	Fox, D. Haywood, J.		Every, F. S. Stevens, H. I.	Derby.
40	62	7	Waylen, G.	Falkner, R.	Waylen, G.	Devizes.
177	22	6	St. Aubin, E.	Norman, A.	Woolcombe, T.	Devonport.
103	10	4	Wragg, F.	Mason, T. B.	Mason, T. B.	Doncaster.
84	81	3	Wallis, J.	Stone, J.	Symonds, G.	Dorchester.
						Dorking.
64	-	5	Finnis, S.	Poulter, James	Stilwell, J. Bass, T. B.	Dover.
			Atkinson, T.	Tonge, R.	Conyers, E. D.	Driffield, Great.
5,149	5,493	213		Foot, L. E. Atkinson, R. Fry, W.	Lentaigne, Dr. J. Harrison, Dr. R.	Dublin.
628	100	7	Fereday, T.	Molineux, C. E.	Blackwell, J.	Dudley.
			Denny, P.	Mitchell, R. G.	Mitchell, R. G.	Dumbarton.
196	142	15	Drumlanrig, Visct.	Threshie, R.	Threshie, R.	Dumfries.
2	-	1	Kelly, J.	Sked, J.	Sked, J.	Dunbar.
500	500	3	Thoms, P. H. Brown, J.	Brown, J.	Monro, W. C. Milne, G.	Dundee.
152	1,619	8	Kinnis, W.	Kilgour, A.	Kilgour, A.	Dunfermline.
-	11	2	Taylor, R.	Taylor, R.	Morris, F. J.	Dunmow.
14	-	2	Gutteridge, R.	Gutteridge, J.	Osborn, J.	Dunstable.
31	657	2	Foster, J. H.	Foster, J. H.	Trueman, W.	Durham.
4,226	6,906	168	Johnston, Sir W.	Dick, J.	Tod, J.	Edinburgh.
						Egham.
153	189	7	Grant, J.	Johnston, J.	Duff, P.	Elgin.
521	338	32	Northcote, Sir S. H.	Sanders, E. A.	Brutton, C.	Exeter.
40	-	2	Browne, Sir H.	Webber, E.	Adams, H. C.	Exmouth.
201	74	7	Adam, R.	Adam, R.	Gentleman, P.	Falkirk.
400	300	19	Rogers T. Broad, R. R.	Tweedy, E. B.	Rundell, W. W.	Falmouth.
87	-	2	De Horne, B. C.	Medley, H. St. J.	Crowdy, G. F. Knapp, T.	Faringdon.

Parish ; P. B. for Parliamentary Borough ; P. C. for Parliamentary City ; T. for Township ; V. for Village.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the Issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.	Amount Paid to the Royal Commissioners.	Amount retained—for Local Expenses.	Demands for Space by Local Committees		Number of Applicants.
								Horiz.	Vertical	
					£. s. d.	£. s. d.	£. s. d.	Feet.	Feet.	
PROVINCES—*cont.*										
Farnham - -	P.	7,264			27 19 0	21 0 0	6 19 0	336	19	6
Fleetwood - -	T.	3,048			5 9 0	3 8 10	2 0 2			
Folkestone - -	M. B.	6,726			38 6 0	38 6 0		9	-	1
Forfar - - -	M. B.	9,311								
Frome - - -	P. B.	11,916			31 14 0	31 14 0		313	14	4
Galashiels - -	T.	5,918	25	25	72 7 0	60 0 0	12 7 0	180	723	13
Glasgow - -	M. C.	333,657	29	238	2,665 12 0	2,483 11 1	182 0 11	11,783	5,645	129
Glastonbury -	M. B.	3,125			22 10 6	20 0 0	2 10 6	351	132	8
Glossop - -	T.	1,663			32 0 0	25 0 0	7 0 0	31	5	1
Gloucester -	M. C.	17,164	67	104	105 2 6	91 16 0	13 6 6	96		13
Godalming - -	M. B.	2,218			23 1 6	23 1 6		160		4
Gosport -	T.	7,749			41 13 4	39 13 4	2 0 0	18	8	2
Grantham - -	M. B.	5,375		34	62 12 0	59 8 0	3 4 0	2,105	43	4
Gravesend - -	M. B.	16,633			19 19 0	17 16 0	2 3 0	772	66	5
Great Grimsby -	M. B.	8,638	1		77 8 0	77 8 0				
Greenock - -	M. B	39,391			130 0 0	100 0 0	30 0 0	71	3	7
Guildford - -	M. B.	6,740	20		94 1 6	87 0 0	7 1 6	4	-	1
Guernsey - -	-	29,798			281 19 6	271 19 6	10 0 0	191	48	14
Haddington -	M. B.	2,887			15 10 0	14 17 0	0 13 0			
Halifax - -	M. B.	33,582	26		729 16 6	608 10 3	121 6 3	2,930	5,949	30
Halstead - -	T.	5,658			2 0 6		2 0 6			
Hartlepool - -	M. B.	9,503			37 12 0	35 0 0	2 12 0	7	6	1
Hastings - -	M. B.	16,966		137	107 0 7	80 0 0	27 0 7	1,757	19	21
Hawick - -	T.	6,683			27 2 0	19 19 5	7 2 7	211	6	5
Helston - -	M. B	3,355			19 10 0	19 10 0		24	-	2
Hemel Hempstead	T.	7,073						4	-	1
Henley-on-Thames - -	P.	3,733			21 0 0	14 10 7	6 9 5	3	-	1
Hereford - -	M. C.*	12,113	105		92 3 6	72 6 6	19 17 0	84	11	12
Hertford - -	M. B.	6,605			33 9 2	33 9 2		78	32	8
Hitchin - -	T.	5,258			21 10 2	19 5 8	2 4 6			
Honiton - -	M. B.	3,427			6 0 0	6 0 0		27	-	1
Hong Kong -					131 5 5	131 5 5				
Horncastle - -	P.	4,921			14 2 6	12 11 6	1 11 0			
Huddersfield -	P. B.	30,880	56		916 13 0	700 0 0	216 13 0	4,384	2,115	122
Hull - - -	M. B.	84,690	15	88	281 5 6	227 12 6	53 13 0	1,039	374	41
Huntingdon -	M. B.	3,882			50 2 6	50 2 6		450		1
Ilfracombe - -	T.	3,654			9 11 6	7 4 8	2 6 10			
Ipswich - -	M. B.	32,914	16		340 3 0	291 9 7	48 13 5	13009	256	23
Isle of Man (Douglas) -	T.	9,704			51 1 6	42 11 8	8 9 10	202	6	22
Isle of Wight -	-	27,338		30	71 4 0	59 18 4	11 5 8			2

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* In this column c. stands for Chapelry ; M. B. for Municipal Borough ; M. C. for Municipal City ; P. fo

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committee.
Horiz.	Vertical					
Feet.	Feet.					
101	13	6	Paine, J. M.	Nichols, Benj.	Nichols, Benj.	Farnham.
			Beechey, Rev. St. V.	Kemp, F.	Stewart, J.	Fleetwood.
9	-	1	Hart, R.	Brockman, R. T.	Brockman, R. T.	Folkestone.
95	-	3	Meffan, P.		Roberts, W.	Forfar.
85	25	5	Sheppard, W. H.	Walters, G.	Walters, G.	Frome.
-	2,019	13	Sime, J.	Haldane, R.	Haldane, R.	Galashiels.
4,339	12,611	136	Anderson, Sir J.	Brock, H.	Liddell, A. Johnson, W. Strang, J.	Glasgow.
201	218	7	Woodland, R.	Porch, T.	Clark, J.	Glastonbury.
31	5	1	Wood, J.	Wood, J	Ball, J.	Glossop.
40	33	11	Kendall, E. L. Guise, W. V. Smallridge, C.	Green, J. C.	Fryer, K. H.	Gloucester.
59	106	4	Yate, F. Balchin, R.	Whitbourne, R.	King, Wm.	Godalming.
20	2	2	Walpole, Rev. T.	Cruickshank, R.	Wilkinson, J.	Gosport.
780	44	6	Ekin, T.	Walkington, W. Hardy, J.	Ekin, T.	Grantham.
777	69	5	Plane, W. S.	Smith, J.	Sharland, G. E.	Gravesend.
			Wintringham, J.	Babb, G.	Daubney, W. H.	Great Grimsby.
47	30	10		Thomson, J.	MacNaughten, P. Hill, N.	Greenock.
4	-	2	Haydon, S.	Haydon, S.	Haydon, S.	Guildford.
111	102	15	Carey, P. S. Le Marchant, J. MacCulloch, E.	Priaulx, J. De Jersey, C.	Clugas, T. Le Lievre, P.	Guernsey.
114	-	3	More, G.	Roughead, D.	Roughead, D.	Haddington.
703	6,600	37	Crossley, I.	Haigh, G.	Carter, R. Brown, W. Crossley, F.	Halifax.
			Vaizey, G. De H.		Arden, G. P. Hustler, O.	Halstead.
7	6	1	Denton, J. P.	Hodgson, W.	Belk, T.	Hartlepool.
461	25	22	Scrivens, G.	Smith, F.	Rock, J., Jun.	Hastings.
70	298	6	Turnbull, J. Armstrong, J. Young, T.		Wilson, J.	Hawick.
23	-	2	Grylls, G.	Moyle, M. P.	Hill, F.	Helston.
4	-	1	Cranstone, J.		Stallon, S.	Hemel Hempstead
			Brakspear, H W.	Tagg, F.	Cooper, S.	Henley-on-Thames.
39	56	12	Lloyd, B. Evans, T.	Morgan, J.	Johnson, R.	Hereford.
24	62	8	Crawley, Y. Hancock, J.	Sworder, T. Longmore, M. S.	Longmore, P. Oram, W. H.	Hertford.
			Sharples, J.	Lucas, Jeffery	Goodwin, S.	Hitchin.
15	-	1		Wethey, E.	Devenish, S.	Honiton.
						Hong Kong.
			Smith, Rev. J.	Overton, T.	Weir, G.	Horncastle.
1,773	3,100	77	Willans, W.	Sikes, C. W.	Greenwood, F. Hastings, W. Laycock, J. C.	Huddersfield.
435	591	26	Palmer, T. W. Cooper, Dr. H.	Thompson, J. S.	Jacobs, B. Frost, H.	Hull.
318	25	4	Cooch, S. E.	Cooch, S. E.	Cooch, S. E.	Huntingdon.
			Bligh, R.	Day, H.	Toms, J. Edwards, T.	Ilfracombe.
3,775	319	32	Long, P. B.	Alexander, J. B.	Notcutt, S. A. Sims, W.	Ipswich.
143	29	17	The Lord Bishop His Excellency the Hon. C. Hope.	More, W. F.	Rogers, S. S.	Isle of Man (Douglas).
-	-	2	Way, E.	Eldridge, J.	Eldridge, J.	Isle of Wight.

Parish ; P. B. for Parliamentary Borough ; P. C. for Parliamentary City ; T. for Township ; V. for Village.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.	Amount Paid to the Royal Commissioners.	Amount retained—for Local Expenses.	Demands for Space by Local Committees.		Numbe of Applicants.
								Horiz.	Vertical	
PROVINCES—*cont.*					£. s. d.	£. s. d.	£. s. d.	Feet.	Feet.	
Isle of Wight—										
Newport - -	M. B.	8,047			85 0 0	85 0 0				1
Ryde - -	T.	7,139			28 13 6	25 0 0	3 13 6	20	1	1
Cowes, W. -	T.	4,786			60 15 6	60 15 6		1		1
Ventnor - -	T.	2,569			7 6 6	5 8 9	1 17 9			
Jedburgh - -	M. B.	2,948		70	17 8 6	13 6 7	4 1 11	1	–	1
Jersey - - -		57,020			250 0 0	250 0 0		209	30	21
Keighley - -	T.	8,258	9		110 14 0	105 2 8	5 11 4	208		2
Kelso - - -	T.	4,783			23 4 6	21 0 0	2 4 6	215		
Kendal - -	M. B.	11,829	4	23	117 12 0	110 10 0	7 2 0	469	2,175	7
Keswick - -	T.	2,618		32	20 16 0	20 16 0		103	–	3
Kidderminster -	M. B.	18,462	73	43	259 16 0	226 7 6	33 8 6	720	4,502	17
Kilmarnock - -	M. B.	19,201		43	44 10 0	44 10 0		205	875	7
Kingsbridge -	T.	1,679		4	6 0 4		6 0 4			
King's Lynn -	M. B.	19,355			56 0 0	56 0 0				
Kirkcaldy - -	M. B.	5,714			74 10 6	68 10 3	6 0 3	86	1,053	9
Knaresborough -	P. B.	5,634			23 7 0	19 4 6	4 2 6	284		17
Lanark - -	M. B.	5,304						6	–	–
Lancaster - -	M. B.	16,127			88 7 0	76 12 10	11 14 2	34	108	4
Launceston - -	M. B.	3,346	11		17 17 0	17 3 0	0 14 0	2	–	1
Leamington Priors	P.	15,692			47 8 6	33 2 4	14 6 2	96	–	1
Leek - - -	T.	8,877			23 0 6	21 5 0	1 15 6	21	3	10
Leeds - - -	M. B.	172,270	90		2,030 8 2	1,600 0 0	430 8 2	8,412	2,977	169
Leicester - -	M. B.	60,584	86	120	199 6 6	150 0 0	49 6 6	2,568	1,383	37
Lewes - - -	P. B.	9,533	1	172	115 8 0	100 0 0	15 8 0	99	–	4
Lichfield - -	M. B.	6,573			26 11 0	22 15 6	3 15 6	31	12	5
Limerick - -	M. B.	[illegible]	9					276	205	12
Lincoln - -	M. C.	17,536	1		56 12 0	56 12 0		27	14	4
Liskeard - -	M. B.	4,380	164		16 0 0	10 0 0	6 0 0	36	–	1
Liverpool - -	M. B.	376,063		387	757 18 0	555 0 0	202 18 0	4,348	544	71
Llanelly - -	C. B.	8,710	14	30	141 4 2	126 9 3	14 14 11	154	9	6
Louth, Lincolnsh.	M. B.	10,467			32 6 0	28 5 3	4 0 9	216	26	2
Luton - - -	T.	10,648						36	–	2
Macclesfield -	M. B.	39,048		28	150 0 0	150 0 0		229	500	6
Maidenhead -	M. B.	3,607	2		54 13 6	49 12 8	5 0 10	–	17	1
Maidstone - -	M. B.	20,730	13		74 4 6	74 4 6		456	106	25
Malmesbury -	M. B.	3,173		11	17 10 6	13 0 7	4 9 11			
Manchester - -	M. B.	303,382	121		4,547 10 0	4,079 5 4	465 19 8	27101	8,813	266
Margate - -	T.	10,025			67 10 0	62 3 1	5 6 11	1	18	3
Market Weighton	T.	2,001			3 0 0	3 0 0				
Marlborough -	M. B.	5,155			15 4 6	15 4 6		6	–	1
Marlow (Great) -	P. B.	6,523			15 16 6	8 9 9	7 6 9	*151	36	7

* In this column C. B. stands for Contributory Borough; C. stands for Chapelry; M. B. for Municipal Borough; M. C. for Municipal City;

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical.					
Feet.	Feet.					
						Isle of Wight—
			Way, E.	Way, E.	Hearn, J. H.	Newport.
1		1	Jaques, W.	Jaques, W.	Eldridge, T. W. Clement, G.	Ryde.
		4	Geneste, Rev. M.	Dear, M.	Manning, T. D.	Cowes W.
2		2	Swinburne, Capt.	Burt, J.	Burt, J.	Ventnor.
1	-	1	Jackson, John	Hilson, G., Jun.	Laing, R. Hilson, G., Jun.	Jedburgh.
140	49	20	Le Breton, Sir T.	Hemery, C.	Le Quesne, C. Evans, G. E.	Jersey.
192	16	2	Brigg, J.		Spencer, G. Hudson, T. D.	Keighley.
			Darling, J. S.	Wilson, P.	Renton, Rev. H. Main, G.	Kelso.
100	2,092	8	Crewdson, G. B.	Gandy, G.	Gandy, G.	Kendal.
103	-	1	Lynn, Rev. J.	Stanger, J.	Hall, J.	Keswick.
78	8,959	18	Boycott, W.	Brinton, H. Crump, G.	Hallen, T.	Kidderminster.
172	1,333	9	Cumming, R.	Wilson, J. Brown, A.	Wilson, J. Brown, A.	Kilmarnock.
			Luney, Rev. R.	Fox, G.	Jarvis, W.	Kingsbridge.
64	-	1	Moyse, W.	Moyse, W.	Moyse, W.	King's Lynn.
55	756	8			Sang, W.	Kirkcaldy.
65	201	13	Powell, S.	Oliver, J. S.	Powell, F. Powell, S. Jun.	Knaresborough.
248	-	4	Fordyce, D.		Annan, J.	Lanark.
34	108	5	Dockray, J. Gregson, H.	Harrison, J. S.	Dunn, W.	Lancaster.
2	-	1	Eyre, T. S.	Gurney, C.	Gurney, C.	Launceston.
220	-	1	Carpenter, W.	Summerfield, H. Thorne, T. H.	Hanbury, J. B.	Leamington Priors.
9	18	8	Alsop, J.	Brough, Joshua	Lance, Capt. W. H. Challinor, J.	Leek.
4,823	5,676	142	Goodman, G. Bateson, J.	Brown, W. W.	Kitson, J. Cawood, M. Wilson, T.	Leeds.
622	1,113	43	Harris, J. D.	Nunneley, T.	Stone, S. Scampton, R.	Leicester.
149	-	6	Godlee, B.	Whitfeld, T.	Lower, M. A.	Lewes.
8	102	4	Dyott, J. P., Jun.	Greene, R.	Lomax, T. G.	Lichfield.
194	230	12	Higgin, Bishop of Limerick.		Anglim, R.	Limerick.
577	14		Snow, J.	Snow, J.	Mason, R.	Lincoln.
12	24	3	Bonse, W. D.	Crouch, E. A.	Jago, J.	Liskeard.
2,541	707	69	Holmes, J. Bent, J.	Horsfall, T.	Grantham, J.	Liverpool.
116	12	12	Chambers, W., Jun.	Williams, M.	Thomas, J.	Llanelly.
-	26	2	Goe, F. F.	Ingoldby, C.	Ingoldby, C.	Louth, Lincolnsh.
-	36	2	Vyse, R.		Austin, C. A.	Luton.
188	726	7	Osborne, J. J. Smith, J.	Wardle, H.	Higginbotham, S.	Macclesfield.
-	3	1	Lock, W.	Smith, J.	Smith, J.	Maidenhead.
294	327	29	Scudmore, C. Tootell, J.	Mercer, J. Mercer, J., Jun. Randall, A.	Monckton, J. Few, W.	Maidstone.
			Salter, S. U.	Chubb, T.	Chubb, T.	Malmesbury.
17,875	8,115	212	Manchester, Bishop of. Potter, J.	Entwistle, W.	Fleming, H. Worthington, T.	Manchester.
1	16	2	Cobb, F. W.	Cobb, T. F.	Caveler, W.	Margate.
			Leighton, R.	Creaser, W.	Leighton, R.	Market Weight
34	66	7	Williams, Rev. Sir E., Bart.	Williams, Rev. Sir E., Bart.	Williams, Rev. Sir E., Bart.	Marlborough.
64	117	8	Hammond, R.	Wethered, O.	Ward, W. L.	Marlow (Great).

P. for Parish; P. B. for Parliamentary Borough; P. C. for Parliamentary City; T. for Township; V. for Village.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.			Amount Paid to the Royal Commissioners.			Amount retained—for Local Expenses.			Demands for Space by Local Committees.		Number of Applicants
														Horiz.	Vertical	
PROVINCES—*cont.*					£.	s.	d.	£.	s.	d.	£.	s.	d.	Feet.	Feet.	
Matlock - - -	T.	4,010												128	-	1
Melksham - -	T.	2,931		28	20	17	0	20	11	0	0	6	0	282	-	1
Melrose - -	T.	966			10	5	6	10	3	2	0	2	4			
Merthyr Tydvil -	P. B.	63,080	2		206	11	6	206	11	6						2
Middleshrough -	T.	7,431		35	56	6	0	45	0	0	11	6	0			
Montrose - -	M. B.	14,328			62	7	0	56	18	0	5	9	0	4	-	1
Newark - -	M. B.	11,330			58	4	0	52	0	0	6	4	0	232	35	7
Newbury - -	M. B.	6,574		94	64	8	0	50	0	0	14	8	0	1,005	87	9
Newcastle, Staffordshire - -	M. B.	10,569			35	16	0	32	14	0	3	2	0	789	48	8
Newcastle-on-Tyne - - -	M. B.	87,784	38		522	4	0	457	6	0	64	18	0	4,755	1,620	122
Newnham - -	P.	1,288			96	14	3	79	19	3	16	15	0	-	16	1
Newport, Monmouth -	M. B	19,810	21	30	78	0	6	72	4	6	5	16	0	270	-	11
Newport Pagnell	T.	3,312		15	7	1	0	5	6	0	1	15	0	15	-	2
New Swindon -	T.	4,744		145	8	7	0	8	0	0	0	7	0	1		1
North Allerton -	P. B.	4,995	33	33	30	0	0	24	0	0	6	0	0	19	-	2
Northampton -	M. B.	26,657	24	89	71	6	1	55	0	0	16	6	1	2,323	240	25
Norwich - -	M. C.	68,195	66	69	430	17	0	376	7	5	54	9	7	3,427	341	43
Nottingham -	M. B.	57,407	21		200	0	0	200	0	0				5,805	2,846	80
Odiham - -	P.	2,811			18	10	6	18	10	6						
Oldham - -	M. B.	52,820	12	11	89	13	0	75	0	0	14	13	0	6,347	54	13
Oswestry	M. B.	4,817			23	19	0	22	10	0	1	9	0	372	30	5
Oxford - -	M. B.	27,973	5		200	0	0	170	0	0	30	0	0	3,910	34	35
Paisley - -	M. B.	47,951	11	36	146	13	0	126	8	0	20	5	0	3,045	9,958	36
Pateley Bridge -	C.	966		27	13	9	0	12	0	0	1	9	0			
Penzance - -	M. B.	9,214	46											115	75	6
Peterborough -	P. B.	8,672			29	1	6	18	17	5	10	4	1	178	9	2
Perth - - -	M. C.	22,232	8		63	0	0	40	0	0	23	0	0	605	53	23
Plymouth - -	M. B.	52,221	31	63	143	16	8	116	7	2	27	9	6	447	5	12
Pocklington -	T.	2,546			5	8	0	4	11	6	0	16	6			
Poole - - -	M. B.	9,255			36	11	0	30	0	0	6	11	0	249	-	4
Portland - -					10	0	0	10	0	0						
Portsmouth - -	M. B.	73,827	5		400	17	11	326	17	6	74	0	5	188	-	13
Preston - -	M. B.	69,493		67	302	16	7	256	12	7	46	4	0	486	107	7
Ramsgate - -	T.	11,837			36	7	6	30	0	0	6	7	6	49	-	4
Reading - -	M. B.	21,456			93	19	0	84	17	0	9	2	0	2,080	-	18
Redruth - -	T.	5,936			7	10	0	7	10	0				309	9	12
Reigate - -	P. B.	4,927			40	4	6	36	9	0	3	15	6	57	-	9
Retford, East -	M. B.	2,943			2	12	3				2	12	3	24	25	3
Richmond, Yorkshire - -	M. B	4,106			97	6	6	84	6	6	13	0	0	709	-	3
Ripon - - -	M. & P. B.	6,080			25	0	0	15	0	0	10	0	0	60	87	4
Rochester - -	M. B.	14,938			8	12	0	1	0	8	7	11	4	-	49	2
Romsey, Hants -	M. B.	2,080		12	21	5	0	16	13	10	4	11	2	15		1

* In this column C. stands for Chapelry; M. B. for Municipal Borough; M. C. for Municipal City; P. for

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.*
Horiz.	Vertical					
Feet.	Feet.					
80	-	1	Newnes, T. M.		Newnes, T. M.	Matlock.
-	32	2	Phillips, J. L.	Phillips, J. L.	Cochrane, J.	Melksham.
			Curle, J.	Erskine, J.	Erskine, J.	Melrose.
			Thomson, W.		Wolrige, J. C.	Merthyr Tydvil
			Bolckow, H.	Wilson, I.	Gilks, E. Fallowes, W.	Middlesbrough.
2	-	3	Mackie, D.	Myers, G. C.	Myers, G. C.	Montrose.
114	82	10	Hall, W.	Burnaby, T. F. A.	Nicholson, W. N.	Newark.
161	93	10	Turner, T.	Knight, J. Bunny, E. B.	Roake, J. W.	Newbury.
68	61	10	Mayer, T. W.	Mayer, T. W.	Tomkinson, W.	Newcastle, Staffordshire.
3,152	2,225	93	Crawhall, J. Plummer, R. Hawks, G. Pattinson, H.	Weatherley, Capt. J. D.	Burnet, T. Watson, J.	Newcastle-on-Tyne.
-	6	3	Boevey Crawley, Sir M.		Wintle, J.	Newnham.
205	-	11	Batchelor, T. B. Evans, W.	Fraser, J.	Latch, T.	Newport, Monmouth.
14	6	3	Bull, Rev. T. P.	Bull, W. B.	Bull, W. B.	Newport Pagnell.
1		1	Grandison, D.	Rea, M.	Bickle, W.	New Swindon.
17	-	2	Mercer, Rev. T. W.	Hamilton, T.	Jefferson, W. T.	North Allerton.
701	215	26	Parker, F.	Grundy, T.	Rands, G.	Northampton.
1,438	193	40	Woodcock, H.	Gurney, J. H. Harvey, R. J. H.	Lemon, R. Willett, H.	Norwich.
2,873	4,016	65	Felkin, W. Birkin, R.		Enfield, W. Butler, Rev. W. J. Rawson, G.	Nottingham.
					Seymour, J. G.	Odiham.
5,979	71	13	Platt, J.	Tipping, H.	Radcliffe, H.	Oldham.
147	30	6	Morris, E.	Morris, E.	Simon, R.	Oswestry.
1,068	460	35	Plumtre, Dr. F. Warburton, G.	Thorp, W. Greswell, Rev. R.	Walker, Rev. R. Spiers, R. J. Plowman, J.	Oxford.
1,139	11437	35	Murray, D.	Martin, W. Hodge, W.	Martin, W. Hodge, W.	Paisley.
			Hutchinson, H.	Vivian, H.	Vivian, H.	Pateley Bridge.
110	75	5	Branwell, R.	Bedford, J.	Arthur, W. S.	Penzance
178	9	3	Gates, J.	Yorke, F. W.	Waite, R. Ruddle, J.	Peterborough.
517	11	21	Dewar, J.	Ross, D.	Reid, A. McLeish, W.	Perth.
178	9	3	Smith, Lieut.-Col. C. H.	Burnell, W.	Arthur, O. C.	Plymouth.
			Blow, Rev. J.	Bulmer, J.	Hornby, T.	Pocklington.
68	30	7	Ledgard, R.	Welch, M. K.	Welch, M. K.	Poole
						Portland.
93	30	11	Bramble, B.	Gillman, G.	Howard, J. Deacon, H.	Portsmouth.
125	4	4	German, J.	Heywood, T.	Cartwright, S.	Preston.
8	36	4	Sackette, S.	Burgess, G.	Burgess, G.	Ramsgate.
1,600	103	21	Darter, W. S.	Adams, H.	Lovejoy, G.	Reading.
172	19	15	Hawkesley, W.	Tweedy, R.	Peter, J. L.	Redruth.
39	8	10	Wynter, Rev. J.	Martin, P.	Martin, P.	Reigate.
16	25	3	Fisher, W. Smith, J.		Phillips, W.	Retford, East.
16	-	3	Cooke, L.	Fisher, Isaac	Cooke, L.	Richmond, Yorkshire.
60	60	1	Thompson, J. Farmery, T.		Nicholson, R.	Ripon.
					Prall, R.	Rochester.
34	-	1	Colcott, T.	Footner, W. A.	Daman, W.	Romsey.

arish; P. B. for Parliamentary Borough; P. C. for Parliamentary City; T. for Township; V. for Village.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.	Amount Paid to the Royal Commissioners.	Amount retained—for Local Expenses.	Demands for Space by Local Committees.		Number of Applicants.
								Horiz.	Vertical	
PROVINCES—*cont.*					£. s. d.	£. s. d.	£. s. d.	Feet	Feet.	
Rotherham - -	T.	6,325			70 1 0	64 2 1	5 18 11	424	116	9
Rugby - - -	T.	6,317			18 16 6	16 12 2	2 4 4	7	95	7
Runcorn - -	T.	8,049		24	24 14 6	22 14 6	2 0 0	1	-	1
Saffron Walden -	M. B.	5,911		113	23 17 6	20 6 0	3 11 6	74	45	4
Salisbury - -	M. B.	11,657			80 16 0	70 19 0	9 17 0	12	-	3
Scarborough -	M. B.	12,866			34 0 0	29 0 0	5 0 0	32	35	4
Selby - - -	P.	5,298			18 16 0	18 16 0		120	-	1
Selkirk - -	M. B.	3,314			25 3 6	24 0 0	1 3 6	15	16	2
Settle - - -	T.	1,976		18	6 0 6	4 0 0	2 0 6	62	125	4
Sheerness - -	T.	8,578			24 10 0	21 10 0	3 0 0	193	4	4
Sheffield - -	M. B.	135,310	52		844 19 0	500 0 0	344 19 0	9,673	3,518	298
Shrewsbury -	M. B.	23,095	24		297 3 0	282 0 0	15 3 0	1,185	55	15
Sidmouth - -	T.	2,516			9 9 0	7 2 0	2 7 0			
Slough - - -					38 15 0	38 15 0				
Southampton -	M. B.	35,305			423 5 3	369 2 2	54 3 1	160	72	14
Southport -	T.	4,765			5 18 0	5 18 0				
South Molton -	M. B.	4,482			14 18 6	13 18 6	1 0 0			
South Shields -	M. B.	28,974	1		30 0 0	20 0 0	10 0 0	228	-	14
Spalding - -	T.	8,799					0 7 2	25	-	4
Stafford - -	M. B.	11,829	55	28	30 0 0	30 0 0		99	-	4
Stafford Potteries	P. B.		7		364 0 0	249 15 0	114 5 0	5,078	1,896	54
Stamford - -	M. B.	8,933	17		10 15 0	10 15 0			156	8
St. Albans - -	M. B.	7,000			50 0 0	50 0 0		264		7
St Austell - -	T.	3,565	23		28 8 2	17 6 10	11 1 4	565	10	22
St. Helens - -	T.	14,866			2 0 0		2 0 0	3	-	1
St Neots - -	T.	2,951			13 13 0	11 10 6	2 2 6	-	30	1
Stirling - -	M. B.	10,365	4		111 1 6	83 14 10	27 6 8	968	1,925	27
Stockport - -	M. B.	53,835		63	419 16 0	400 0 0	19 16 0	101	-	6
Stockton - -	M. B.	10,365			95 8 6	70 0 0	25 8 6	531	15	11
Stoke - - -	P. B.	84,027	28					2,695	836	14
Stonehaven - -	T.	3,240			16 16 0	16 16 0		11		4
Stonehouse - -	P.	11,979		63	22 11 6	10 1 0	12 10 6	17	25	2
Stourbridge - -	T.	7,180	15		77 6 0	50 0 0	27 6 0	715	216	12
Stroud - - -	P. B.	36,535	57		92 16 6	92 16 0		1,764	1,425	18
Sudbury - -	M. B.	6,043								
Sunderland - -	M. B.	63,855			205 0 0	205 0 0				
Swansea - -	M. B.	31,461	67		155 17 0	111 6 0	44 11 0	1,150	12	22
Tamworth - -	M. B.	8,655			49 4 6	41 18 6	7 6 0	45	-	4
Taunton - -	M. B.	14,176		77	88 0 0	55 2 6	32 17 6	372	142	19
Tavistock - -	P. B.	8,086			34 4 6	30 12 7	3 11 11	210	-	3
Tewkesbury -	M. B.	5,878	2 1	30	20 18 0	20 18 0		8	-	1
Tiverton - -	M. B.	11,144								
Torrington - -	M. B.	3,308			1 9 6	1 9 6		4	-	1
Totness - -	M. B.	4,419			23 16 0	17 12 10	6 3 2	28	-	3
Tring - - -	T.	3,218	1	23	3 17 4	2 15 0	1 2 4	52		2
Truro - - - Ditto, Cornwall Committee -	M. B.	11,034	14		110 10 0	4 8 8	106 1 4	1,600	76	29

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* In this column C. stands for Chapelry ; M. B. for Municipal Borough ; M. C. for Municipal City ; P. for

throughout the United Kingdom—*continued.*

Allotments of Space.		Number of Persons to whom Space was Allotted	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical.					
Feet.	Feet.					
261	301	8	Aldred, J.	Heseltive, E. J. Charles Storey.	Barras, J.	Rotherham.
2	80	6		Highton, Rev. H.	Highton, Rev. H. Billington, W.	Rugby.
7	-	1	Brundrit, W. W.	Whiteway, R. C.	Simpson, J.	Runcorn.
61	80	5	Leverett, J.		Spurgin, T.	Saffron Walden.
87	4	3	Moore, Dr. T.	Lee, C.	Lee, C.	Salisbury.
28	9	5	Tindall, R.	Moody, J. J. P.	Moody, J. J. P.	Scarborough.
145	6	4	Best, Rev. G.	Morrell, R.	Lowther, G. Standering, T.	Selby.
15	26	2	Roberts, G.	Paten, R.	Rodger, P.	Selkirk.
22	104	1	Ingram, Rev. R.	Robinson, W.	Wildman, J. Robinson, W., Jun.	Settle.
27	177	4	Baldock, T.	Edmeades, R.	Keddell, J. S.	Sheerness.
3,736	2,939	146	Turton, T. Birks, T.	Brown, W.	Plimsoll, S.	Sheffield.
1,018	124	18	Blakemore, R. B.	Pidgeon, H.	Pidgeon, H.	Shrewsbury.
				Radford, J. G. G.	Radford, J. G. G	Sidmouth.
						Slough.
115	217	13	Andrews, R.	Atherley, George	Deacon, C. E.	Southampton.
			Clarke, Rev. B. S.	Longton, J.	Mocatta, W. A. Lewis, R.	Southport.
100	-	1	Browne, T.	Dames, J.	Pearse, J. Riccard, R.	South Molton.
155	-	8	Anderson, R.	Anderson, W.	Elliott, R. Stevenson, A. S.	South Shields.
25	9	3	Percival, A.		Watkinson, H.	Spalding.
19	12	3	Elley, T. B.	Lloyd, E. Jones, W.	Turnock, J.	Stafford.
4,040	5,000	37	Kennedy, W. S. Clementson, J. Wise, J. A.	Hollins, D.	Battam, T. Dean, W. Machin, W. Scott, J.	Stafford Potteries.
320	74	9			French, W.	Stamford.
174	-	7	Russell, J.	Russell, J.	Langley, W.	St. Albans.
397	66	20	Coode, T.	Coode, T.	Drew, J. H.	St. Austell.
			Sillar, Dr.		Fincham, F.	St. Helens.
	30	1	Evans, J. J.	Paine, J.	Wilkinson, O.	St. Neots.
455	1,557	15	Sawers, J.	Morison, P. G. Boyd, A.	Morison, P. G. Boyd, A.	Stirling.
92	-	5	Sykes, R.	Sykes, R.	Vaughan, J.	Stockport.
130	50	12	Trotter, C.	Brady, A.	Laing, J. Crosby, J.	Stockton-on-Tees.
						Stoke.
11		4	Robertson, C. G.	Keith, P.	Tindal, W. R.	Stonehaven.
17	25	2	Sheppard, Dr. J.	Clouter, J.	Mann, J. P. Rodd, R.	Stonehouse.
459	258	16	Foster, W.	Harward, J.	Gibson, G. W.	Stourbridge.
216	2,000	15	Hooper, C.	Hallewell, J.	Freston, W. A.	Stroud.
4	-	1	Addison, Gen. T. Spooner, W.	Wright, J.	Gooday, J.	Sudbury.
			Moreley, W.	Oliver, T.	Candlish, J. Snowball, W.	Sunderland.
891	71	23	Michael, M. J.	Stroud, W.	Stroud, G. T.	Swansea.
26	-	1	Shaw, S. P.	Mactaggart, J.	Mactaggart, J. Thompson, J.	Tamworth.
142	92	15	King, R. M.	White, E.	White, E.	Taunton.
110	8	3	Bridgman, C.	Benson, J.	Luxton, R. Vosper, A. S. M.	Tavistock.
			Chandler, N.	Evans, T.	Thomas, J.	Tewkesbury.
105	-	1			Hollings, T. Forwood, T.	Tiverton.
				Braginton, G.	Braginton, G.	Torrington.
19	-	3	Bowden, W.	Brown, W.	Seaman, H.	Totness.
16	-	3	Butcher, F.	Butcher, F.	Faithful, H.	Tring.
			Lemon, Sir C.		Simmons, G. N.	Truro.
1,548	313	26	Bassett, N. F. Tweedy, W. M. Ward, W.		Rundell, W. W.	Ditto, Cornwall Committee.

Parish ; P. B. for Parliamentary Borough ; P. C. for Parliamentary City ; T. for Township ; V. for Village.

Abstract of the Operations of each Local Committee

Local Committees.	*	Population.	Number of Promoters before the issue of the Commission.	Number of Subscribers reported.	Amount reported to Commission.			Amount Paid to the Royal Commissioners.			Amount retained—for Local Expenses.			Demands for Space by Local Committees.		Number of Applicants.
														Horiz.	Vertical	
PROVINCES—*cont.*					£.	s.	d.	£.	s.	d.	£.	s.	d.	Feet.	Feet.	
Tunbridge Wells	T.	10,587			34	17	0	27	14	0	7	3	0	80	20	3
Uttoxeter - -	T.	4,990			30	0	0	30	0	0						
Wakefield - -	M. B.	22,066			372	6	0	279	5	6	93	0	6	566	185	15
Walsall - -	M. B.	25,680	19		43	2	6	39	10	6	3	12	0	782	123	16
Waltham Abbey	T.	2,329		166	25	17	6	24	0	0	1	17	6	58	-	4
Wallingford -	M. B.	2,819			2	9	6				2	9	6	27	-	2
Wareham and Purbeck - -	T.	17,378			22	0	0	22	0	0				103	-	11
Warrington -	M. B.	22,894			196	15	6	150	0	0	46	15	6	622	315	7
Warwick - -	M. B.	10,972		39	74	3	6	65	0	0	9	3	6	597	737	9
Waterford - -		25,246	53											110		3
Wellington, Salop	T.	4,601		6	73	13	0	70	12	6	3	0	6	35	-	2
Wellington, Somerset - -	T.	3,926		20										43	11	2
Wells - - -	M. C.	4,736			43	15	0	38	15	8	4	19	4	21	-	1
Wentworth -		1,500			5	0	0	5	0	0						
Wexford - -		12,331	54		3	17	6				3	17	6	322	10	15
Whitby - -	P. B.	10,989			49	4	0	46	16	8	2	7	4	212	-	20
Whitehaven -	P. B.	18,916			120	12	6	106	10	0	14	2	6	31	67	6
Wigan - - -	M. B.	31,941			243	6	7	160	0	0	83	6	7	17	-	4
Winchester - -	M. C.	13,704			104	6	6	90	0	0	14	6	6	1	76	3
Windsor - -	M. B.	9,596			385	14	0	300	0	0	85	14	0	376	108	6
Wirksworth -	T.	2,632	12		15	0	0	12	17	6	2	2	6	44	-	2
Wisbeach - -	M. B.	10,594			67	1	9	62	13	6	4	8	3		116	13
Witham - -	P.	3,303												1,500	3	2
Wolverhampton -	P. B.	119,748	45		270	17	0	200	0	0	70	17	0	1,982	506	40
Wolverton - -	P.	2,070		130	6	0	0	6	0	0				98	-	1
Woodstock - -	M. B.	1,262														
Wootton Bassett -	P.	2,123												1	-	1
Wotton-under-Edge - -	P.	4,224			28	12	6	26	10	0	2	2	6	15	120	2
Worcester - -	M. C.	27,528	205		231	12	0	206	4	2	25	7	10	713	67	19
Workington -	T.	5,837			8	18	0	6	11	5	2	6	7	56	-	3
Worthing - -	T.	5,374			33	19	6	30	0	0	3	19	6			
Yarmouth, Great	M. B.	30,879	29		54	12	9	30	7	0	24	5	9	111	-	9
Yeovil - - -	P.	7,744			74	3	6	66	3	3	8	0	3	122	14	12
York - - -	M. C.	36,303	92	51	103	6	3	103	6	3					78	21
Totals - -	-	-	3,371	8,111										416,354	194,886	8,213

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* In this column C. stands for Chapelry; M. B. for Municipal Borough; M. C. for Municipal City; P. for

NOTE.—Before printing this return it was submitted to the correction of the various Local Committees, and their corrections admited in every case except in the money columns. The proofs sent for correction to six Local Committees, viz., those of Cardiff, Kidderminster, Sunderland, Tiverton, Uttoxeter, and Waterford, had not been returned at the date of closing this Table.

throughout the United Kingdom—*continued.*

* Allotments of Space.		Number of Persons to whom Space was Allotted.	Chairman.	Treasurer.	Secretary.	Local Committees.
Horiz.	Vertical.					
Feet.	Feet.					
89	-	3	Trustram, C.	Trustram, C.	Colbran, J. Stevens, N. E.	Tunbridge Wells.
			Taylor, D. H. Lord Waterpark.	Bladon, R.	Bladon, R.	Uttoxeter.
364	160	15	Holdsworth, J.	Leatham, W. H.	Whitham, J.	Wakefield.
260	161	10	Shannon, J.	Blackburn, J.	Newman, J. W.	Walsall.
44	9	3	Tulloh, Capt. A.	Tulloh, Capt. A.	Jessopp, L.	Waltham Abbey.
25	-	2	Scorey, Geo.		Atkinson, R. W.	Wallingford.
14	-	8		Pike, J. W.	Filliter, F.	Wareham and Purbeck.
420	360	8	Pierpoint, B.	Robinson, E.	Marsh, J. F.	Warrington.
615	559	9	Walker, W. Redfern, C.	Greenway, K. Greaves, E.	Tibbits, J.	Warwick.
29	57	4			Nevins, H. N.	Waterford.
25	6	1	Buckle, F.	Benson, J.	Benson, J.	Wellington, Salop
43	11	2	Sanford, W.		White, F.	Wellington, Somerset.
20	-	2	Wells, E. N.	Foster, W. J. S.	Davies, R.	Wells.
						Wentworth.
174	30	15	West, J. R.	Vicary, J. M.	Dillon, E.	Wexford.
93	30	19	Belcher, H.	Cramp, W. H.	Cramp, W. H. Belcher, H.	Whitby.
31	68	6	Jenkins, Rev. J.	Armitstead, R.	Armitstead, R.	Whitehaven.
65	-	4	Acton, Joseph	Ffarington, H.	Acton, T.	Wigan.
5	65	2	Faithful, E. Seagrim, C.	Bailey, C.	Bailey, C.	Winchester.
266	158	8	Phillips, C.	Melville, A. L.	Voules, C. S.	Windsor.
44		2	Cantrell, W.	Wall, James	Whittaker, James	Wirksworth.
92	116	11	Whitsed, Dr. J.	Peckover, A. Peckover, W.	Dawbarn, W.	Wisbeach.
208	3	4	Gill, Rev. R.		Walford, C., Jun.	Witham.
603	1,350	44	Walker, J.	Walker, T.	Walker, T.	Wolverhampton.
98	-	1	M'Connell, J. E.	M'Connell, J. E.	Allan, J. G.	Wolverton.
25	-	1			North, —	Woodstock.
			Bradford, C.		Drake, J.	Wootton Bassett.
15	120	2	Hill, W. J.	Adey, A.	Foxwell, W. G.	Wotton-under-Edge.
312	105	12	Lea, J. W. Hughes, W. Padmore, R.	Webb, E.	Webb, E. Purchas, S.	Worcester.
56	-	3	Curwen, Rev. H.	Armstrong, G.	Armstrong, G.	Workington.
			Whitter, W.	Henty, E.	Tribe, W. F.	Worthing.
28	76	10	Gourlay, D. A.	Palmer, C. J.	Palmer, C. J.	Yarmouth, Great.
475	34	8	Hannam, J.	Stuckey, W.	Batten, J.	Yeovil.
736	15	20	Meek, J.	Seymour, G. H.	Munby, J. Richardson, H.	York.
201,480	234,065	6,924				

Parish ; P. B. for Parliamentary Borough ; P. C. for Parliamentary City ; T. for Township ; V. for Village.

JAMES WILBUD.

APPENDIX No. XLI.

RETURN showing the Number of AWARDS of different kinds made by JURIES of each CLASS and GROUP to each COUNTRY represented in the EXHIBITION.

Group.	Class	United Kingdom, including Guernsey & Jersey					British Dependencies. North American Colonies *					British Dependencies. Australia *					British Dependencies. India *†					British Dependencies. West Indies *				
		Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards
A Raw Materials.	I.	474	2	25	33	60	26	-	3	3	6	26	-	1	1	2	Not known.	-	1	1	2	3	-	-	-	-
	II	134	1	39	33	73	1	-	-	-	-	7	-	-	-	-		-	-	-	-	2	-	-	-	-
	III.	156	1	35	22	58	55	-	10	12	22	27	-	6	8	14		-	7	4	11	14	-	3	2	5
	IV.	119	2	29	44	75	10	-	2	15	17	32	-	13	32	45		-	37	21	58	14	-	10	9	19
B Machinery	V.	400	4	65	-	69	6	-	1	-	1	1	-	-	-	-		-	-	-	-	-	-	-	-	-
	VI	241	15	51	-	66	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	VII.	169	3	17	6	26	1	-	-	-	-	2	-	-	-	-		-	-	-	-	-	-	-	-	-
	VIII	340	5	45	8	58	7	-	-	-	-	1	-	-	-	-		-	-	-	-	1	-	-	-	-
	IX	256	4	29	1	34	11	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	X a, b, c	563	21	95	35	152	4	-	-	1	1	3	-	-	1	1		-	1	1	2	-	-	-	-	-
C Textile Fabrics.	XI	64	-	16	5	21	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XII	337	-	74	15	89	6	-	2	-	2	-	-	-	1	1		-	-	-	-	-	-	-	-	-
	XIII	80	-	31	7	38	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XIV	98	-	22	29	51	5	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XV	—*	-	26	15	41	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XVI	280	-	43	39	82	16	-	3	2	5	15	-	-	1	1		-	-	-	-	-	-	-	-	-
	XVII	176	-	34	20	54	6	-	1	1	2	3	-	1	2	3		-	1	-	1	-	-	-	-	-
	XVIII.	97	-	18	-	18	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XIX	292	1	83	57	141	1	-	-	-	-	2	-	-	1	1		-	-	-	-	-	-	-	-	-
	XX	238	-	50	49	99	7	-	-	2	2	1	-	-	-	-		-	-	1	1	1	-	-	-	-
D Metallic, Vitreous, and Ceramic Manufactures	XXI	43	1	61	50	112	3	-	-	5	5	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XXII.	624	5	202	106	313	6	-	-	3	3	-	-	-	-	-		-	-	-	-	2	-	-	-	-
	XXIII	122	6	14	28	48	2	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XXIV	93	-	17	16	33	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	XXV	60	1	12	13	26	-	-	-	-	-	-	-	-	-	-		-	1	-	1	-	-	-	-	-
E Miscellaneous Manufactures.	XXVI.	346	-	23	29	52	9	-	-	-	-	5	-	-	-	-		-	1	1	2	-	-	-	-	-
	XXVII	127	2	48	39	89	1	-	-	1	1	-	-	-	-	-		-	1	1	2	-	-	-	-	-
	XXVIII	139	2	26	6	34	2	-	3	1	4	3	-	-	-	-		-	-	-	-	2	-	2	-	2
	XXIX	283	-	46	28	74	8	-	-	1	1	24	-	-	-	-		-	2	-	2	16	-	-	-	-
F Fine Arts	XXX	508	2	26	40	68	2	-	-	-	-	1	-	-	-	-		-	-	-	-	-	-	-	-	-
TOTAL - -	-	6861	78	1302	773	2155	195	-	25	47	72	155	-	21	47	68	-	-	52	30	82	55	-	15	11	26

United Kingdom: * Included in Class XII

North American Colonies: * Canada, Nova Scotia, New Brunswick, Newfoundland

Australia: * New South Wales South Australia Van Diemen's Land, New Zealand, Falkland Islands

India: * Including Ceylon and Eastern Archipelago
† One unclassified Council Medal

West Indies: * Antigua Bahamas Barbadoes, British Guiana, Grenada, Jamaica, Montserrat, St Kitts, St Vincent, Trinidad One of these Prizes properly belongs to St Domingo, which is not a British possession

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group.	Class.	British Dependencies in the MEDITERRANEAN.*					British Dependencies. SOUTH AFRICA.*					America.					Austria.					Belgium.				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A RAW MATERIALS.	I.	1	-	-	-	-	4	-	-	-	-	39	-	4	2	6	47	1	7	11	19	36	-	10	7	17
	II.	-	-	-	-	-	2	-	-	-	-	9	-	1	1	2	17	-	5	9	14	8	-	2	2	4
	III.	-	-	-	1	1	13	-	3	4	7	62	1	13	9	23	16	-	2	4	6	40	-	1	6	7
	IV.	2	-	1	1	2	23	-	8	7	15	27	-	20	15	35	36	-	12	11	23	34	-	10	18	28
B MACHINERY.	V.	-	-	-	-	-	-	-	-	-	-	18	-	2	-	2	5	-	1	-	1	9	1	3	-	4
	VI.	-	-	-	-	-	-	-	-	-	-	16	1	7	-	8	1	-	1	-	1	35	-	2	-	2
	VII.	-	-	-	-	-	-	-	-	-	-	8	-	1	-	1	-	-	-	-	-	4	-	-	-	-
	VIII.	-	-	-	-	-	1	-	-	-	-	10	-	2	3	5	13	1	-	2	3	22	-	8	4	12
	IX.	-	-	-	-	-	-	-	-	-	-	17	1	1	-	2	6	-	-	-	-	14	-	4	-	4
	X. *a*, *b*, *c*	1	-	-	1	1	-	-	-	-	-	66	1	13	6	20	46		3	9	12	22	-	5	3	8
C TEXTILE FABRICS.	XI.	4	-		-	-	3	-	-	-	-	16	-	2	-	2	10	-	1	-	1	3	-	1	1	2
	XII.	-	-	-	-	-	1	-	-	-	-	5	-	1	-	1	50	-	5	2	7	15	-	4	1	5
	XIII.	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	31	-	8	10	18	2	-	-	-	-
	XIV.	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	18	-	1	2	3	33	-	7	9	16
	XV.	-	-	-	-	-	-	-	-	-	-	2	-	1	-	1	26	-	6	4	10	19	-	4	1	5
	XVI.	-	-	-	-	-	2	-	-	-	-	20	-	5	1	6	26	-	1	1	2	29	-	4	4	8
	XVII.	1	-	-	-	-	-	-	-	-	-	29	-	2	6	8	15	1	4	2	7	13	-	2	4	6
	XVIII.	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	12	-	2	-	2	10	-	-	-	-
	XIX.	16	-	-	-	-	1	-	-	-	-	5	-	1	1	2	13	-	1	3	4	50	-	18	5	23
	XX.	2	-	-	-	-	3	-	-	-	-	15	-	3	3	6	13	-	7	3	10	7	-	1	2	3
D METALLIC, VITREOUS, AND CERAMIC, MANUFACTURES.	XXI.	-	-	-	-	-	1	-	-	-	-	7	-	3	1	4	111	-	4	10	14	1	-	-	1	1
	XXII.	-	-	-	-	-	-	-	-	-	-	24	-	8	1	9	41	-	8	16	24	28	1	10	6	17
	XXIII.	4	-	-	3	3	-	-	-	-	-	3	-	-	-	-	5	-	1	1	2	5	-	1	-	1
	XXIV.	-	-	-	-	-	-	-	-	-	-	3	-	1	-	1	24	-	3	6	9	5	-	-	2	2
	XXV.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	2	2	4	4	-	-	-	-
E MISCELLANEOUS MANUFACTURES.	XXVI.	-	-	-	-	-	2	-	-	1	1	20	-	-	1	1	22	1	5	4	10	17	-	3	4	7
	XXVII.	1	-	3	3	6	-	-	-	-	-	2	-	-	1	1	6	-	2	4	6	8	-	2	7	9
	XXVIII.	1	-	-	-	-	-	-	2	-	2	11	1	5	2	8	19	-	5	-	5	3	-	4	1	5
	XXIX.	2	-	-	-	-	18	-	-	1	1	42	-	5	-	5	52	-	11	6	17	13	-	3	-	3
F FINE ARTS	XXX.	5	-	-	-	-	-	-	-	-	-	15	-	1	-	1	49	-	6	4	10	37	-	5	4	9
TOTAL - -	-	40	-	4	9	13	75	-	13	13	26	499	5	102	53	160	731	4	114	126	244	506	2	114	92	208

* Ionian Islands, Malta, Gibraltar.

* Cape of Good Hope, Western Africa, St. Helena, Mauritius.

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group.	Class.	China.					Denmark.					Egypt.*					France,* including ALGIERS.					Greece.				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions	Total Awards	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions	Total Awards.	Number of Exhibitors	Council Medals.	Prize Medals.	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A RAW MATERIALS.	I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	2	10	10	22	8	-	-	1	1
	II.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	55	2	20	9	31	2	-	-	-	-
	III.	-	-	1	-	1	3	-	-	1	1	-	-	1	3	4	84	4	19	22	45	9	-	-	2	2
	IV.	-	-	1	6	7	1	-	-	-	-	-	-	1	2	3	98	3	50	62	115	9	-	-	1	1
B MACHINERY.	V.	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	40	1	10	-	11	-	-	-	-	-
	VI.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	58	4	24	-	28	-	-	-	-	-
	VII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	2	-	2	-	-	-	-	-
	VIII.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	35	3	17	3	23	-	-	-	-	-
	IX.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	28	-	3	-	3	-	-	-	-	-
	X *a,b,c*	-	-	-	-	-	9	-	3	2	5	-	-	-	-	-	174	14	41	34	89	-	-	-	-	-
C TEXTILE FABRICS.	XI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	8	-	8	-	-	-	-	-
	XII.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81	-	35	6	41	-	-	-	-	-
	XIII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	47	17	64	3	-	-	-	-
	XIV	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	32	-	8	5	13	-	-	-	-	-
	XV	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	71	1	13	10	24	-	-	-	-	-
	XVI.	-	-	-	-	-	4	-	1	1	2	-	-	-	-	-	76	-	26	13	39	1	-	-	-	-
	XVII.	-	-	-	-	-	1	-	1	-	1	-	-	1	-	1	79	-	25	22	47	-	-	-	-	-
	XVIII.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-	17	-	17	-	-	-	-	-
	XIX.	-	-	-	-	-	2	-	1	-	1	-	-	-	-	-	47	1	26	15	42	-	-	-	1	1
	XX.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67	-	26	16	42	1	-	-	-	-
D METALLIC, VITREOUS, AND CERAMIC MANUFACTURES.	XXI.	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	23	-	7	5	12	-	-	-	-	-
	XXII.	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	82	4	35	42	81	-	-	-	-	-
	XXIII.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	6	31	7	44	-	-	-	-	-
	XXIV.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	22	1	8	2	11	-		-	-	-
	XXV.	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	40	1	6	6	13	-	-	-	-	
E MISCELLANEOUS MANUFACTURES	XXVI.	-	-	2	1	3	2	-	-	-	-	-	-	-	-	-	69	4	22	14	40	-	-	-	-	-
	XXVII.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	19	-	10	19	29	-	-	-	1	1
	XXVIII.	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	36	-	12	3	15	-	-	-	-	-
	XXIX.	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	84	2	33	15	50	-	-	-	-	-
F FINE ARTS	XXX.	-	-	-	-	-	5	-	1	2	3	-	-	-	-	-	114	1	28	13	42	3	-	-	-	-
TOTAL - -	-	-	-	5	8	13	39	-	8	9	17	-	-	3	7	10	1,710	54	619	370	1,043	36	-	-	6	6

* One unclassified Council Medal.

* Two unclassified Council Medals

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group	Class	Hamburgh, and small States of N. Germany.*					Netherlands.					Persia.					Portugal.					Prussia, & Zollv. States (not separately enumerated)				
		Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards	Number of Exhibitors	Council Medals	Prize Medals	Honourable Mentions	Total Awards
A RAW MATERIALS	I	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4	4	47	2	9	9	20
	II	-	-	1	-	1	6	-	1	2	3	-	-	-	-	-	-	-	-	-	-	18	-	12	7	19
	III	6	-	1	1	2	12	-	-	1	1	-	-	-	-	-	-	-	3	3	6	32	-	1	5	6
	IV	2	-	-	1	1	7	-	2	5	7	-	-	-	1	1	-	-	3	17	20	43	-	11	27	38
B MACHINERY	V	-	-	-	-	-	5	-	1	-	1	-	-	-	-	-	-	-	-	-	-	4	-	1	-	1
	VI	4	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	2	4	-	6
	VII	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	VIII	4	-	1	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	2	2
	IX	-	-	-	-	-	3	-	1	-	1	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
	X *a*, *b*, *c*	8	-	1	2	3	9	1	-	1	2	-	-	-	-	-	-	-	1	-	1	47	1	11	10	22
C TEXTILE FABRICS	XI	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	6	-	2	-	2
	XII	-	-	-	-	-	6	-	1	1	2	-	-	-	-	-	-	-	-	-	-	86	-	19	-	19
	XIII	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	7	6	13
	XIV	4	-	-	1	1	8	-	-	2	2	-	-	-	-	-	-	-	-	-	-	41	-	4	6	10
	XV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	-	9	8	17
	XVI	6	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	1	1	42	-	4	4	8
	XVII	2	-	-	-	-	8	-	1	2	3	-	-	-	-	-	-	-	-	-	-	28	-	6	9	15
	XVIII	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	2	-	2
	XIX	8	-	1	-	1	4	-	1	-	1	-	-	-	-	-	-	-	-	1	1	23	-	4	8	12
	XX	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	1	1	2
D METALLIC, VITREOUS, AND CERAMIC MANUFACTURES	XXI	3	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	26	-	4	5	9
	XXII	14	-	-	1	1	7	-	3	1	4	-	-	-	-	-	-	-	-	-	-	45	1	20	21	42
	XXIII	2	-	1	-	1	6	-	1	-	1	-	-	-	-	-	-	-	-	3	3	23	2	4	6	12
	XXIV	3	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	3	3	10	-	1	1	2
	XXV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	10	-	3	3	6
E MISCELLANEOUS MANUFACTURES	XXVI	25	-	1	1	2	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	36	-	2	1	3
	XXVII	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	1	2	11	-	1	6	7
	XXVIII	6	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	1	-	•1	16	-	4	-	4
	XXIX	10	-	2	1	3	1	-	1	-	1	12	-	-	-	-	-	-	3	1	4	59	-	10	6	16
F FINE ARTS	XXX	8	-	-	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	1	5	6	12
TOTAL - -	-	134	-	9	11	20	113	1	16	15	32	12	-	-	1	1	157	-	14	35	49	872	9	161	157	327

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* Hanover, Hanse Towns, Lubeck, Mecklenburg Strelitz, Mecklenburg Schwerin, Oldenburg.

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group.	Class.	Bavaria. (Zollverein.)					Frankfort-on-Maine. (Zollverein.)					Grand Duchy of Hesse. (Zollverein.)					Luxemburg. (Zollverein.)					Nassau. (Zollverein.)				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A Raw Materials.	I.	11	-	1	-	1	-	-	-	-	-	4	-	1	-	1	-	-	-	-	-	5	-	1	1	2
	II.	4	-	1	2	3	2	-	1	-	1	3	-	1	1	2	-	-	-	-	-	1	-	1	-	1
	III.	2	-	-	-	-	1	-	-	-	-	8	-	1	1	2	-	-	-	-	-	-	-	-	-	-
	IV.	2	-	1	1	2	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B Machinery.	V.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	VI.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	VII.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	VIII.	2	-	-	1	1	1	-	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	IX.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	X. *a*, *b*, *c*	14	2	2	2	6	3	-	-	1	1	8	-	1	-	1	-	-	-	-	-	1	-	1	-	1
C Textile Fabrics.	XI.	1	-	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XII.	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	XIII.	3	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XIV.	3	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XV.	4	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XVI.	1	-	-	1	1	3	-	-	1	1	8	-	3	1	4	1	-	-	1	1	-	-	-	-	-
	XVII.	6	-	1	2	3	4	-	-	-	-	9	-	1	4	5	-	-	-	-	-	-	-	-	-	-
	XVIII.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XIX.	2	-	-	-	-	1	-	-	-	-	3	-	-	1	1	-	-	-	-	-	-	-	-	-	-
	XX.	1	-	-	-	-	-	-	-	-	-	3	-	-	1	2	1	-	1	-	1	-	-	-	-	-
D Metallic, Vitreous, and Ceramic Manufactures.	XXI.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XXII.	2	1	-	-	1	4	-	-	1	1	2	-	-	1	1	1	-	-	-	-	-	-	-	-	-
	XXIII.	3	-	-	-	-	1	-	-	1	1	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-
	XXIV.	2	-	-	3	3	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XXV.	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E Miscellaneous Manufactures.	XXVI.	10	-	2	1	3	-	-	-	-	-	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	XXVII.	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	-	-	-	-
	XXVIII.	5	-	1	-	1	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XXIX.	7	-	2	-	2	4	-	-	1	1	14	-	-	1	1	-	-	-	-	-	3	-	2	-	2
F Fine Arts	XXX.	11	-	3	3	6	3	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Total - -	-	99	3	16	21	40	33	-	1	7	8	80	-	8	14	22	6	-	1	1		13	-	5	1	6

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued*.

Group.	Class.	Saxony. (Zollverein.)					Wurtemburg. (Zollverein.)					Rome.					Russia.					Sardinia.				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A Raw Materials.	I.	1	-	-	-	-	2	-	-	1	1	5	-	-	-	-	26	-	3	3	6	2	-	-	3	3
	II.	2	-	1	-	1	5	-	2	-	2	-	-	-	-	-	1	-	2	1	3	10	-	2	3	5
	III.	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	20	-	8	13	21	8	-	2	-	2
	IV.	6	-	-	4	4	1	-	1	-	1	6	-	-	2	2	52	-	10	29	39	17	-	2	7	9
B Machinery.	V.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-
	VI.	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
	VII.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	VIII.	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-
	IX.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	X. *a*, *b*, *c*	11	-	2	1	3	11	-	2	5	7	-	-	-	-	-	7	-	1	1	2	2	-	1	-	1
C Textile Fabrics.	XI.	10	-	2	-	2	3	-	1	-	1	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-
	XII.	42	-	14	-	14	3	-	-	-	-	-	-	-	-	-	12	-	6	-	6	2	-	-	-	-
	XIII.	1	-	-	-	-	-	-	-	-	-	-	-	-	2	2	15	-	4	5	9	7	-	6	1	7
	XIV.	6	-	2	1	3	4	-	-	1	1	-	-	-	-	-	15	-	1	3	4	1	-	-	-	-
	XV.	24	-	-	-	-	-	-	-	-	-	1	-	-	-	-	5	-	1	-	1	-	-	-	-	-
	XVI.	3	-	-	-	-	4	-	-	-	-	1	-	-	-	-	40	-	3	-	3	2	-	-	-	-
	XVII.	7	-	2	1	3	5	-	2	1	3	2	-	1	-	1	3	-	1	1	2	2	-	1	1	2
	XVIII.	2	-	-	-	-	3	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-
	XIX.	32	-	5	3	8	6	-	-	-	-	-	-	-	-	-	10	-	-	1	1	3	-	1	2	3
	XX.	14	-	7	-	7	-	-	-	-	-	-	-	-	-	-	14	-	2	3	5	2	-	-	-	-
D Metallic, Vitreous, and Ceramic Manufactures.	XXI.	2	-	-	2	2	4	-	2	-	2	-	-	-	-	-	3	-	2	-	2	-	-	-	-	-
	XXII.	6	-	1	-	1	6	-	4	2	6	-	-	-	-	-	2	-	3	1	4	3	-	-	-	-
	XXIII.	1	-	1	-	1	4	-	-	-	-	-	-	-	-	-	7	2	1	-	3	3	-	2	-	2
	XXIV.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
	XXV.	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
E Miscellaneous Manufactures.	XXVI.	1	-	-	-	-	3	-	-	1	1	-	-	-	-	-	1	-	3	-	3	13	-	1	2	3
	XXVII.	-	-	-	-	-	1	-	-	1	1	1	1	3	4	8	3	1	3	-	4	1	-	-	1	1
	XXVIII.	1	-	-	-	-	3	-	1	-	1	-	-	-	-	-	-	-	1	-	1	2	-	1	-	1
	XXIX.	4	-	-	-	-	29	-	5	2	7	1	-	-	-	-	4	-	3	1	4	7	-	3	1	4
F Fine Arts	XXX.	7	-	2	1	3	4	-	-	1	1	35	-	3	1	4	5	-	1	2	3	5	-	-	-	-
Total - -	-	190	-	40	13	53	109	-	20	15	35	52	1	7	9	17	263	3	60	65	128	95	-	22	21	43

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group	Class.	States of South America.*					Spain.*					Sweden and Norway.					Switzerland.					Tunis.*				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A RAW MATERIALS.	I.	-	-	-	-	-	43	-	1	4	5	14	-	2	3	5	2	-	1	1	2	-	-	-	-	-
	II.	-	-	-	-	-	14	-	-	1	1	7	-	-	-	-	2	-	-	-	-	-	-	-	-	-
	III.	-	-	-	-	-	20	-	8	7	15	2	-	-	-	-	3	-	1	1	2	-	-	1	-	1
	IV.	-	-	-	2	2	72	-	13	18	31	3	-	-	1	1	5	-	-	-	-	-	-	1	2	3
B MACHINERY.	V.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	VI.	-	-	-	-	-	3	-	-	-	-	1	-	-	-	-	4	-	1	-	1	-	-	-	-	-
	VII.	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	1	3	-	-	-	-	-
	VIII.	-	-	-	-	-	8	-	1	-	1	7	-	-	-	-	5	-	1	1	2	-	-	-	-	-
	IX.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
	X, *a*, *b*, *c*	-	-	-	-	-	5	-	1	-	1	10	-	-	2	2	71	2	12	11	25	-	-	-	-	-
C TEXTILE FABRICS.	XI.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	17	-	7	2	9	-	-	-	-	-
	XII.	-	-	-	-	-	6	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	XIII.	-	-	-	-	-	8	-	1	-	1	5	-	-	-	-	13	-	17	10	27	-	-	-	-	-
	XIV.	-	-	-	-	-	4	-	1	1	2	5	-	-	-	-	13	-	-	1	1	-	-	-	-	-
	XV.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-
	XVI.	-	-	-	-	-	6	-	-	2	2	3	-	-	-	-	15	-	1	1	2	-	-	-	-	-
	XVII.	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-
	XVIII.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	3	-	3	-	-	-	-	-
	XIX.	-	-	-	-	-	8	-	3	1	4	5	-	4	-	4	24	-	11	3	14	-	-	-	-	-
D METALLIC, VITREOUS, AND CERAMIC MANUFACTURES.	XX.	-	-	-	-	-	2	-	-	-	-	2	-	-	-	-	1	-	2	2	4	-	-	-	4	4
	XXI.	-	-	-	-	-	-	-	-	1	1	7	-	1	1	2	8	-	1	2	3	-	-	-	-	-
	XXII.	-	-	-	-	-	4	-	3	-	3	7	-	-	1	1	4	-	1	-	1	-	-	-	-	-
	XXIII.	-	-	-	-	-	3	-	2	-	2	6	-	-	-	-	7	-	4	2	6	-	-	-	-	-
	XXIV.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	XXV.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-
E MISCELLANEOUS MANUFACTURES.	XXVI.	-	-	-	-	-	2	-	-	1	1	8	-	-	-	-	2	-	-	2	2	-	-	-	1	1
	XXVII.	-	-	-	-	-	2	-	-	1	1	5	-	1	1	2	-	-	-	-	-	-	-	-	-	-
	XXVIII.	-	-	-	-	-	-	-	3	-	3	1	-	1	-	1	5	-	4	1	5	-	-	-	-	-
	XXIX.	12	-	1	-	1	3	-	5	3	8	7	-	1	-	1	7	-	1	-	1	-	-	1	-	1
F FINE ARTS	XXX.	-	-	-	-	-	8	-	1	1	2	4	-	-	-	-	19	-	-	1	1	-	-	-	-	-
Total - -	-	12	-	1	2	3	286	-	43	41	84	117	-	10	9	19	263	2	70	43	115		-	3	7	10
		* Brazil, Chili, Mexico, New Granada, Society Islands					* One unclassified Council Medal.															* One unclassified Council Medal.				

Return showing the Number of Awards of different kinds made by Juries of each Class and Group to each Country represented in the Exhibition—*continued.*

Group.	Class.	Turkey.*					Tuscany.					Total.—All Countries by Classes.					Total.—All Countries by Groups.				
		Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.	Number of Exhibitors.	Council Medals.	Prize Medals.	Honourable Mentions.	Total Awards.
A Raw Materials.	I.	-	-	-	-	-	8	-	2	-	2	867	7	81	98	187	2,474	22	552	675	1,249
	II.	-	-	-	-	-	1	1	2	1	4	318	4	94	72	170					
	III.	-	-	1	-	1	4	-	1	-	1	641	6	129	132	267					
	IV.	-	-	-	-	-	25	-	9	12	21	648	5	247	373	625					
B Machinery.	V.	-	-	-	-	-	3	-	-	-	-	498	6	84	-	90	3,022	88	516	163	767
	VI.	-	-	6	-	6	1	-	1	-	1	366	22	97	-	119					
	VII.	-	-	-	-	-	-	-	-	-	-	222	3	23	7	33					
	VIII.	-	-	-	-	-	-	-	-	-	-	494	9	75	26	110					
	IX.	-	-	-	-	-	-	-	-	-	-	345	5	38	1	44					
	X. *a, b, c*	-	-	-	-	-	2	1	2	-	3	1,097	43	199	129	371					
C Textile Fabrics.	XI.	-	-	-	-	-	-	-	-	-	-	155	-	41	10	51	3,818	4	923	544	1,471
	XII.	-	-	-	-	-	-	-	-	-	-	656	-	161	26	187					
	XIII.	-	-	2	-	2	1	-	1	-	1	284	-	124	60	184					
	XIV.	-	-	-	-	-	1	-	-	-	-	295	-	46	62	108					
	XV.	-	-	-	-	-	4	-	-	-	-	228	1	60	40	101					
	XVI.	-	-	1	-	1	1	-	-	-	-	616	-	95	73	168					
	XVII.	-	-	-	-	-	1	-	-	-	-	405	1	88	78	167					
	XVIII.	-	-	-	-	-	1	-	-	-	-	202	-	42	-	42					
	XIX.	-	-	-	-	-	1	-	1	-	1	559	2	161	103	266					
	XX.	-	-	3	4	7	2	-	2	-	2	418	-	105	92	197					
D Metallic, Vitreous, and Ceramic Manufactures.	XXI.	-	-	2	2	4	-	-	-	-	-	243	1	87	88	176	1,705	32	510	407	949
	XXII.	-	-	-	-	-	2	-	1	-	1	917	12	299	204	515					
	XXIII.	-	-	-	-	-	3	-	-	-	-	257	16	64	52	132					
	XXIV.	-	-	-	1	1	-	-	-	-	-	166	1	31	37	69					
	XXV.	-	-	-	1	1	1	-	-	-	-	122	2	29	26	57					
E Miscellaneous Manufactures.	XXVI.	-	-	-	-	-	3	-	3	2	5	602	5	69	67	141					
	XXVII.	-	-	-	-	-	8	-	4	3	7	205	4	80	95	179					
	XXVIII.	-	-	1	-	1	3	-	-	1	1	267	3	78	15	96					
	XXIX.	-	-	3	1	4	2	-	1	2	3	727	2	144	72	218					
F Fine Arts	XXX.	-	-	-	-	-	21	-	-	4	4	930	4	82	85	171	930	4	82	85	171
Total - -	-		-	19	9	28	99	1	30	25	57	13,750	164	2,954	2,123	5,241	13,750	164	2,954	2,123	5,241
Unclassified - -																	187	7	-	-	-
Summary - - -																	13,937	171	2,954	2,123	5,248

* One unclassified Council Medal.

This Table has been drawn up with all possible care; but as discrepancies occur in parts of it, it is as well to explain the cause of some of them. For instance, the North American Colonies are stated to have had ten Exhibitors in Class IV., and to have received seventeen Jury Awards of different kinds in that Class. The explanation of this is that many Exhibitors put under other Classes, also showed articles belonging to this Class; for instance, C. A. Jetu, Canada, No. 109, exhibited principally leather, and was therefore classed as an Exhibitor of Class XVI., though the Jury of Class IV. made honourable mention of his fixed oils in their Report. These apparent discrepancies are, however, more numerous in this Class than in any other, from the very large number of awards made by the Jury of the Class.

W. Matchwick.

APPENDIX No. XLII.

LETTERS addressed by the COMMISSIONERS of various FOREIGN COUNTRIES to the ROYAL COMMISSIONERS and EXECUTIVE COMMITTEE at the termination of the EXHIBITION.

UNITED STATES OF AMERICA.

United States Office,
London, November 8th, 1851.

GENTLEMEN,

As my official duties in the Crystal Palace have now ceased, I shall take my departure for America, the 12th inst.

I cannot allow myself to go hence without tendering you my sincere and heartfelt acknowledgments for the many acts of kindness, courtesy, and attention, I have received at your hands, and for the uniform promptness with which you have responded to all communications emanating from this Commission.

Indeed, in my humble opinion, the success of the Great Exhibition may be mainly attributed to the admirable and indefatigable management of your Committee, and the limited number of gentlemen of which it was composed, thereby preventing collisions which would inevitably have occurred, had the whole responsibility been entrusted to a larger body of Directors. While I have received every assistance from Officers under your direction, there is one who has been high in authority, and of whom I cannot speak in too high terms of praise; I allude to Captain Owen, of the Royal Engineers. The even temper, and calm dignified demeanour he has observed on all trying and pressing occasions, are worthy of the highest commendation, and for one I am proud to bear witness of the energetic and impartial manner in which he has discharged his arduous duties.

Wishing each and all of you, Gentlemen, that continued success to which your brilliant talents so justly entitle you,

I have the honour to subscribe myself, very respectfully,
Your obedient Servant,
(Signed) EDWARD RIDDLE,
United States Commissioner.

To the Executive Committee of the Great Exhibition.

AUSTRIA.

No. 43, *Clarges Street, Piccadilly,*
London, 17*th December* 1851.

GENTLEMEN,

MY functions as Commissioner for His Imperial Majesty the Emperor of Austria to the Great Exhibition of all Nations, having now ceased, I feel that I should leave undischarged one of the most important, and, at the same time, the most agreeable of the duties that have devolved upon me, were I not to avail myself of such an opportunity to offer to you the expression, however inadequately worded, of my cordial thanks for the constant attentions, the unwearied courtesy, and the invaluable assistance I have received throughout the whole course of my communications with your able and intelligent body. These thanks, I feel authorized in saying, on behalf of all the contributors to the Austrian Collection, as well as for myself, and for all others who have participated with me in the honour of acting under His Imperial Majesty's Commission, are due to the entire Executive Committee in its collective capacity, and to their Officers without the exception of a single individual member.

From Mr. Wentworth Dilke I have at all times met, in common, I am sure, with every other Foreign Commissioner, with a degree of attention, a disposition to facilitate my inquiries or my applications, and to assist in the completion of all conditions that have been proved requisite for the satisfactory working of the system and management established by us, that they have been in every respect worthy of a gentleman so distinguished by his capacity, in mastering the most voluminous and complicated demands of any department or affairs committed to his superintendence. It is matter of sincere gratification to me to render my humble testimony to the manner in which he afforded to the Austrian Commission, the full benefit of his admirable suggestions, and his comprehensive attention.

To Captain Owen, whose promptitude and business-like arrangements in every matter connected with the organization or requirements of the Austrian Division, which came within the supervision of his department, were always to be relied upon, and always contributed so efficiently to the development of the objects on which he was consulted by this Commission, I beg to offer, in an especial manner, my warmest acknowledgments. It would be difficult, indeed, to overrate the obligations I feel under for the zeal and interest manifested by that officer, to give effect to every suggestion, that, on mature consideration, I deemed it expedient from time to time to submit, with a view to give effect to the legitimate objects and wishes of the parties whose interests had been confided to my care.

To Mr. Harman, also, I have been much indebted for the ready aid afforded to the Officers and agents of the Commission, whenever they have had occasion to address themselves to him; whilst from Mr. Duncombe we have derived every information it has been in his power to give us on various important points of detail.

Finally, Gentlemen, I beg you to believe that the urbanity and consideration which you have been pleased to manifest to myself personally, in the course of our long-continued communications, have added even to those claims on my gratitude and respect that had been already established by the frank and friendly spirit in which you co-operated in carrying out the objects of the Commission of His Imperial Majesty, and the views of my compatriots who were contributors to the memorable Exhibition of 1851.

I carry with me, on returning to the undivided occupations of a mercantile career, sentiments of profound respect for your enlightened Committee, and its invaluable labours, which will at all times be cherished by,

GENTLEMEN,
Your faithful and obedient Servant,
(Signed) C. BUSCHEK.

To the Executive Committee of the Royal Commission
for conducting the Great Exhibition of the
Works of Industry of all Nations, 1851.

BAVARIA.

London, 26 *Sloane Street*,
9th December 1851.

GENTLEMEN,

ON the eve of my departure from this country, I but follow the dictates of my heart in trying to express the sincere gratitude I feel for all attentions, kindness, and assistance with which I have been favoured by you from the beginning of the Exhibition to its close.

It is not only in my own, but also in the name of all the Bavarian Exhibitors, whose interests I was directed to take care of, that I beg you will accept our thanks for the truly paternal care which the Honourable Members of your Committee in general have shown in favour of the Exhibitors. And I feel particularly called upon to express my heartfelt acknowledgments to Captain H. C. Owen, Royal Engineers, and to Mr. F. M. Harman, for the ever ready, most valuable, and effective assistance which on every occasion they have lent me, with the utmost urbanity and kindness.

That the Great Exhibition of 1851 will be followed by most important consequences to all Nations,—that it will be the means of enlarging the views and increasing the experience even of the most able men,—and that the happy idea of its illustrious author, to promote by it, useful intercourse between all countries, peace and goodwill towards each other, will be successfully accomplished, these are undeniable results, to be gratefully contemplated by all. The interior management of that great enterprise, the result of your admirable exertions and perseverance, will for ever live in the memory of all those whose good fortune it was to witness the working of that complicated machinery so ably directed by you.

I cannot conclude this letter without expressing a wish that some of you, Gentlemen, may sooner or later happen to pass through Ratisbon, in Bavaria, the place of my residence, and that by there sending for me, you will give me an opportunity of paying my respects to you, and of pointing out all which that ancient and not uninteresting town and its picturesque environs contain.

I have the honour to remain, most respectfully,
GENTLEMEN,
Your most obedient and obliged Servant,
(Signed) B. J. SCHUBARTH,
Commissioner for Bavaria.

To the Honourable Members of the Executive
Committee of the Great Exhibition of the
Works of Industry of all Nations.

DENMARK.

13, *Alfred Place, West*,
21st January 1852.

GENTLEMEN,

As my duties at the Exhibition of 1851 are now concluded, I feel it incumbent upon me to express my high sense of the courtesy which I, in common with other Foreign Commissioners, have uniformly experienced from the Executive Committee, whose energy and zeal have so materially contributed to the remarkable success which has attended this great undertaking.

The highest praise is most deservedly due to the Officials of the Exhibition, who so ably carried out the details of the Plan, but so efficient and so promptly rendered was the support and service of all the gentlemen with whom I had the pleasure to transact business, that it would be difficult for me to particularize any special branch or name; and I therefore confine

myself to the expression of my sincerest thanks to and through the Executive Committee on the part of myself and of the Government I had the honour to represent, for the very valuable assistance afforded.

I have the honour to remain,
Gentlemen,
Your most obedient Servant,

Regnar Westenholz,
Commissioner for Denmark.

To the Executive Committee.

FRANCE.

Londres, 27 *Juillet* 1851.

Prince,

La Commission française ne veut pas quitter la Grande Bretagne sans exprimer une dernière fois les sentiments qu'elle éprouve pour Votre Altesse Royale.

La grande pensée de l'Exposition Universelle est la vôtre. Les difficultés pour la rendre acceptable en Angleterre étaient immenses: vous les avez surmontées, par la raison qui convainct, par la grâce qui persuade.

A la Commission Royale, composée des talents spéciaux les plus éminents, et des hommes d'état les plus capables de mener à bien les difficiles entreprises, vous avez ajouté la *Commission Exécutive*, dont nous ne saurions assez faire l'éloge. Nous admirons l'habilité singulière qu'elle a développée dans l'accomplissement d'une tâche, où palais, mobilier, et discipline, tout était nouveau, tout était immense, et le temps limité.

Nous aimons à la louer pour son urbanité parfaite à l'égard des étrangers; cette urbanité s'est fait remarquer depuis les officiers les plus élevés, jusque chez les moindres gardes de la police, qui seraient mieux nommées encore les gardes de la politesse.

Les Exposants, les visiteurs de tous les pays ont été touchés du plus gracieux spectacle; c'est la curiosité flatteuse et la bienveillance infatigable avec lesquelles Sa Majesté, comme son auguste famille, s'est complue a parcourir pendant trois mois les expositions des différents peuples. Epoux et pères, nous nous sentions émus de voir combien la Reine était heureuse d'attacher à sa couronne un fleuron plus aimé que tous les autres, en conquérant les suffrages et les vœux parmi les représentants de toutes les nations, pour une œuvre qu'elle chérit dans le père de ses enfants.

Un mot sur nos fonctions; trois cent quatorze Jurés empruntés à toutes les nations, ont employé quatre-vingtdeux jours d'examens approfondis et de discussions les plus sérieuses, pour conduire à bien l'entreprise si délicate de juger les produits de quarante nations.

Nous aurions voulu, nous Jurés français, des récompenses de premier ordre pour tous les mérites du premier ordre, même pour la beauté! même pour la grace! même pour la perfection! sans proscription d'aucun genre.

Nous avons lutté pour que les restrictions, les interdictions fussent aussi limitées qu'il a dépendu de nous; sans nous inquiéter des répulsions, des répugnances et des apprehensions mercantiles, même en Angleterre.

Dans les classes de l'industrie où tous les ordres de récompenses annoncées par la Commission Royale sont restées possibles, nous avons apporté nos soins à faire triompher la justice distributive.

L'art est comme la nature; loin de se montrer exclusif, il aime à repartir ses dons entre les enfants des grandes familles nationales. Nous sommes heureux de cette diversité qui permet d'honorer, à différents titres, le génie, le gout, l'imagination, et la raison, chez les peuples, dont la variété brilliante constitue la richesse et la splendeur du genre humain.

Français, et fiers à ce titre, nous ne sommes pas de ces cosmopolites qui suppriment la patrie afin d'y substituer des abstractions nébuleuses et d'adorer des tables rases. Nous ne sommes pas de ceux qui rêvent pour l'avenir la disparition des types sacrés qui caracterisent les races et les nationalités. La grandeur et la beauté disparaitraient de la surface de la terre si, par un effet de magie, ses montagnes s'abaissaient, ses vallées s'exhaussaient, tandis que ses animaux, ses plantes, et ses hommes, tous devenus de même taille et de la même couleur, se ravaleraient sous un niveau qui ressemblerait au néant, à force d'uniformité.

Mais chaque nation sans effacer son caractère, peut ajouter à son bien-être, à sa richesse, a sa puissance, par des emprunts judicieux plus ou moins habiles, demandés aux progrès, aux découvertes, aux perfectionnements des autres nations. Telle est la réalité du service qu'aura préparé l'Exposition Universelle.

Ici chaque peuple voit ses produits rapprochés de tous les autres, et bien souvent surpassés. L'orgueil que son isolement exaltait, s'abaisse involontairement, et sa raison en profite. Au lieu de rêver encore qu'il se suffit à lui même et qu'il est né supérieur, il voudra travailler à le devenir.

On verra donc des efforts nouveaux tentés dans tous les pays, pour améliorer les produits utiles au genre humain.

Voilà le bien général, immense, dont la source remonte à la pensée première de Votre Altesse Royale; bienfait pour lequel nous exprimons de nouveau notre vive réconnaissance.

Qu'il me soit permis d'ajouter à cette lettre un seul mot de gratitude personelle. La bienveillance indulgente dont vous avez honoré le Président de la Commission Française, à

porté ses fruits ; elle seule peut expliquer les distinctions trop flatteuses qu'il a reçues et qui surpassent de beaucoup son faible mérite.

J'ai l'honneur d'être, avec le plus profond respect,
Le trés humble et trés obéissant serviteur,
De Votre Altesse Royale,
(Signé) Baron Charles Dupin.
Le Président de la Commission Française.

A Son Altesse Royale
le Prince Albert.

[**The French Government also marked their sense of the manner in which the Exhibition had been carried into effect, by presenting Her Majesty with the magnificent specimen of Gobelin Tapestry, which had been exhibited in the Sèvres Room of the Exhibition, and was known under the name of the "Massacre of the Mamelukes." To the Earl Granville was presented a beautiful Cabinet of Ormulu, ornamented with compartments of Sèvres China, representing the "Life of Rubens." To Mr. Dilke was presented a handsome Tea and Coffee Service, also of Sèvres China.**]

GREECE.

25 Finsbury Circus, London,
February 27, 1852.

Gentlemen,

As the labours of the Greek Committee in connexion with the Great Exhibition of 1851 are now terminated, the Committee desire me, before separating, to express to His Royal Highness Prince Albert, and the Royal Commissioners, their most grateful thanks for the unceasing support and valuable facilities invariably afforded them upon every occasion, during the tenure of their office, in their efforts to carry into effect the part assigned them in those gloriously conceived and newly revived Olympic games, in which not the physical, but the mental powers of the united world have been called into friendly competition, in order to augment and advance the sources of happiness, and the well-being of mankind.

The Committee feel it a pleasurable duty to request the Royal Commissioners to convey to the indefatigable Captain Owen their especial acknowledgments for his constant urbanity, valuable advice and assistance, upon all occasions when referred to ; which not only greatly lightened their exertions, but proved most advantageous, by enabling them to complete their arrangements in an efficient manner.

I have the honour to be, with the highest respect and consideration,
Gentlemen,
Your most obedient, very humble Servant,
(In the absence of the President of the Greek Committee,) P. Ralli,
(Signed) D. P. Scaramanga.
The Secretary.

The Royal Commissioners of the Great Exhibition of 1851,
&c. &c. &c.

NETHERLANDS.

Union Hotel, Salisbury Square,
12th November 1851.

Gentlemen,

When already so many voices have expressed so eloquently their admiration of the great work which has so brilliantly and successfully terminated, it would almost seem presumption in me to add my feeble praise.

But now on the eve of my return to my country, I would rather leave myself open to the charge of the presumption than ingratitude, for not to express my deep sense of the many kindnesses received, the flattering reception I met with during my stay in England, and the great indulgences shown me by the Royal Commissioners, and Executive Committee, would indeed be ingratitude.

It here becomes my painful duty to refer to the lamented death of my predecessor Mr. Camp. Permit me, Gentlemen, to remind you, but for that melancholy event, which deprived me of a valuable friend, he would have fulfilled the task much better that now devolves upon me ; for if I have at all deserved the too flattering praise that the august President of your Commission has addressed to me, it is because my young friend had made the preliminary arrangements belonging to my department in such a manner as at once to insure the successful discharge thereof.

After this act of justice rendered to his memory, allow me, Gentlemen, to express loyally and sincerely my deep gratitude, and to assure you that it can only be equalled by my admiration of the measures the Royal Commissioners took to secure the complete success of this grand enterprise.

I have also infinite pleasure in acknowledging the aid afforded me by the Executive Committee, the Superintendents of the various departments, and by all those who during so long a time contributed to render easy the task so difficult, and without that almost impossible, to him who has the honour to be,

With the profoundest respect,
Your most obedient Servant,
(Signed) G. Goossens.
Commissioner for the Netherlands.

To the Royal Commissioners.

SARDINIA.

Turin, November 9, 1851.

GENTLEMEN,

THE Commissioners of the Sardinian Government for the Great Exhibition of 1851, the Presidency of which was entrusted to me, received the esteemed letter, dated the 29th October last, which the Commissioners of Her Britannic Majesty had the politeness to address to them.

It is with the greatest satisfaction that they have been able to learn from the same, how highly their united endeavours have been appreciated in seconding the promoters of that great and memorable undertaking, and they have unanimously entrusted to me the honourable charge of returning to you their most cordial thanks for the indulgence manifested to them.

The Sardinian Commissioners feel that they would be greatly wanting in their duty if they did not seize the present opportunity to manifest to Her Britannic Majesty's Commissioners their feelings of the most lively gratitude, for the attention and care they have displayed with regard to the products of this Kingdom, from the time of their admission into the Palace of Hyde Park, to the end of the Exhibition.

I avail myself of this opportunity to offer to you the assurances of the high consideration with which

I have the honour to subscribe myself,
GENTLEMEN,
Your most obedient Servant,
(Signed) C. CAVOUR,
Minister of Commerce.

To the Most Honourable Gentlemen
the Commissioners of Her Britannic Majesty,
for the Great Exhibition of 1851.

London, December 22, 1851.
124 *Mount Street, Grosvenor Square.*

GENTLEMEN,

BEFORE leaving the hospitable shores of your great and illustrious country, I feel it to be my bounden duty to express to you my heartfelt gratitude, both in my own name, and in that of the whole body of Sardinian exhibitors, for the truly kind, effective, and considerate assistance which we have invariably experienced at your hands, as well as for the never-failing courtesy displayed towards us in the discharge of your truly complicated and arduous duties. I would also tender my most sincere acknowledgments to those intelligent and scientific co-operators in this noble task, who, under your directions, have contributed so materially, and have laboured so indefatigably to collect, classify, and arrange this gigantic accumulation of the World's Industry. I feel more particularly called upon to express my most cordial thanks to Colonel Reid, the Chairman of the Executive Committee and present Governor of Malta, for his valuable assistance, as well as for his generous sympathy towards my native country in the cause of science and civilization.

I feel it were impossible to enumerate the many and lasting benefits which must result from the grand idea of the illustrious Prince, under whose auspices the great undertaking was carried to its fullest development. I feel persuaded that it will ever be referred to as the most stupendous conception of modern times, inasmuch as it demonstrates what may be accomplished by a country whose respect for the laws goes hand in hand with liberty, and when the conviction has practically prevailed for the first time in the world's history, that nations do not profit by each other's losses, but that they grow to be great and thriving by each other's prosperity, or in other words, that each individual portion is interested in the prosperity of all. I feel confident that the effect of this Exhibition on future ages, will be the union of not only all the nations of Europe, but that of all the nations of the world; and I moreover venture to predict, that this Industrial Exhibition will and must be regarded as the corner-stone of that Temple of Peace which it is the object of all enlightened Governments to assist in elevating.

Once more, Gentlemen, allow me to express my deep-felt gratitude in the name of myself and my countrymen, for the invariable kindness and urbanity of which you have given us so many proofs under many trying and most difficult circumstances.

I have the honour to remain,
GENTLEMEN,
Your most obedient and respectful Servant,
(Signed) LENCISA,
Royal Commissioner for Sardinia.

To the Executive Committee of the Great Exhibition.

SPAIN.

Madrid, December 15, 1851.

THE Foreign Commissioners can, in my humble opinion, claim but a very small share of the happy issue of the Exhibition of the Works of all Nations. To your Royal Highness, who conceived the idea, and whose persevering efforts carried it out in spite of many obstacles, and to the eminent men whom your Royal Highness had the care to associate as Royal Commissioners, is due all the gratitude of the concurring Nations.

These are the feelings I find in my mind after having visited, examined, and admired an Exhibition, from which all will report so many advantages. Spain will certainly not be the last; the visits paid on this occasion to England and the Exhibition by so many of her sons, whose ideas must have been considerably enlarged, will not be lost to their country. The sight of so many objects and industrial products, which we are in want of, will powerfully stimulate the interchange with our abundant natural productions; interchange which will undoubtedly be highly beneficial on both sides, and increase with the gradual development of the liberal institutions and the consequent enlightenment and prosperity of the country, whose resources will therefore augment, as also its consumption and produce.

It was to me highly gratifying to have participated in an event so full of hope for my country; the Service Medal, and the copy of the Jury Reports, which the Royal Commissioners have awarded to me with their wonted benevolence, and your Royal Highness' flattering letter, are a recompense and a distinction far superior to the merits of my scanty services as President of the Spanish Commission, and fill my heart with intense and sincere gratitude.

I have the honour, with the highest respect, to be
YOUR ROYAL HIGHNESS'
Most humble and obedient Servant,
(Signed) JOAQUIN ALFONSO.

To His Royal Highness Prince Albert.

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5 *Water Lane, Tower Street,*
November 20, 1851.

DEAR SIR,

I FEEL that I should be wanting in proper feeling if I did not cordially acquiesce in, and sympathize with, the very eloquent Letters that have been addressed to Her Majesty's Commissioners by my colleagues, the Commissioners for Switzerland and America.

I feel that in expressing my sincere sentiments of admiration at the perfect manner in which all the details of this great work have been carried out, and of gratitude for the attention and kindness that have been uniformly shown to me, both as an individual, and in my official capacity of Spanish Commissioner, I can but in a great degree repeat the expressions of my colleagues who have already had the honour of addressing you.

They have, indeed, left little for me to add; but I assure you that I most sincerely and entirely feel with them the debt of gratitude that we all owe to the entire body of English gentlemen officially connected with the Exhibition.

I am about to leave for Spain, and shall make it my duty to represent to my Government in Madrid, and to all interested in the Exhibition, the unanimity with which every contributing Nation has concurred in expressing their perfect satisfaction and admiration of the conduct of every Department, from the highest to the lowest.

To those more immediately connected with our portion of the Building, I beg to tender, in the name of myself and my brother colleagues, our sincere acknowledgments of the uniform consideration, attention, and assistance that have been shown to us. Captain Owen's unremitting zeal and unwearied kindness left us nothing to wish for, and his Assistant and Secretary, Mr. Wylde, vied with each other in the good work. * * *

I sincerely trust that our Noble President, and all connected with this great work, may long live to enjoy the honours so arduously obtained and so richly deserved.

I have the honour to be,
DEAR SIR,
Your most obedient and humble Servant,
(Signed) MANUEL DE YSASI,
Commissioner and Secretary to the Commission for Spain to the Great Exhibition of 1851.

Edgar A. Bowring, Esq.,
Secretary to Her Majesty's Commissioners,
Exhibition Building, Hyde Park.

SWEDEN AND NORWAY.

2 Crosby Square, City,
January 19, 1852.

DEAR SIRS,

THE year having recently expired which gave its name to the great event of the Exhibition of Industry of all Nations in Hyde Park, at which I had the honour to assist on behalf of Sweden and Norway, and the duties devolving on me as Commissioner for the said countries, necessarily protracted long after the closing day at the Crystal Palace, having now reached their termination, as far at least as regards the official intercourse with the Executive Committee, I deem it a fitting opportunity to tender you herewith my grateful acknowledgments for the continual kindness, assistance, and courtesy I have met with at your hands, during the whole of that memorable year, while at the same time I cannot deny myself the pleasure of expressing my admiration of the able management and the indefatigable energy which you have so eminently manifested in carrying this vast undertaking through all its stages to a successful issue. Proud of the honour of having co-operated with you in so great a work, I am also anxious to render justice to the unremitting attention and aid afforded me by all officers under your directions, and especially to add my testimony to the high encomiums which have so deservedly been passed on Captain Owen, of the Royal Engineers, by my respective colleagues from all countries. The urbanity and zeal I have experienced from Mr. Wylde and Mr. Harman, likewise call for my highest commendation.

Wishing you all, dear Sirs, for many years to come, the noble gratification of successes similar to the one your talents mainly contributed to achieve in 1851,

I have the honour to remain, with every sentiment of good will and respect,
Your most obedient Servant,
(Signed) CHARLES TOTTIE.

To Messieurs the Executive Commissioners
for the Great Exhibition of 1851.

SWITZERLAND.

London, November 3, 1851.

ALLOW me to address to your Board as the immediate organ of intercourse between the Royal and Foreign Commissioners, the following letter, which I beg you will place before the Royal Commissioners.

I cannot leave London without performing the agreeable duty, which has become more and more urgent during every hour of my stay in this country, of expressing to the Royal Commissioners, as well as to the Executive Committee, my best thanks, both in the name of the country which I had the honour of representing, and in my own. The intelligence and order shown by the acting officers of the Great Exhibition, and their kind indulgence happily blended, as it was, with the necessary earnestness and severity, will be ever remembered by all those who had the good fortune to come in contact with them during this memorable period.

Among the great merits of the Royal Commissioners, whose beneficial influence on the general intercourse among civilized nations will be thankfully acknowledged by mankind, the attention which they paid to the charming arrangements, and I may be allowed the expression, the almost domestic comfort and order in the Building, are certainly not the least; and although they have gained for it the undisputed admiration of their contemporaries, I hope they will not refuse the sincere thanks of an individual, whose duties enabled him hourly to experience the benefits of their happy organization.

I have the honour to be,
GENTLEMEN,
Your very obedient Servant,
(Signed) PROFESSOR H. F. BOLLEY,
Commissioner for Switzerland.

To the Executive Committee for carrying out the
Great Exhibition of the Works of Industry
of all Nations.

WURTEMBURG.

Stuttgard, March 10, 1852.

SIRS,

I AM directed by His Majesty the King of Wurtemburg's Commissioners for Industry and Commerce, to acknowledge the receipt of the letter of Scott Russell, Esq., and Edgar Bowring, Esq., your acting Secretaries, dated the 22nd of October last year, which has been directed to M. Von Viebahn, at Berlin. They have learned by it with the greatest satisfaction that the co-operation of the Wurtemburg Commissioner and his Assistants at the Great Exhibition has met the approbation of the Royal Commission.

His Majesty the King of Wurtemburg's Commissioners for Industry and Commerce cannot avoid stating their cordial thanks to the Royal Commission for the marks of civility and attention shown to the Wurtemburg officers, as well as for the wise conduct of the Exhibition, which in spite of so many difficulties that have arisen, has been brought to the most successful termination.

The Royal Commissioners of the Exhibition of all Nations have further obliged the Wurtemburg Government by the communication, that they intend to send a series of the several Medals distributed by them, together with a copy of the Reports of the Juries, illustrated with photograph copies of articles exhibited. The Wurtemburg Government will keep these precious presents as a most valuable Memorandum of this great event, the only one of this kind that exists in history, and of the eminent men who have produced and conducted it.

* * * *

It is with peculiar pleasure that the undersigned avails himself of this opportunity to renew to the Royal Commission the assurances of the high consideration and esteem with which he has the honour to remain their most obedient and faithful Servant.

(Signed) F. STEINBEIS,
Acting Commissioner.

*To the Royal Commission of the Great Exhibition
of all Nations, London.*

ZOLLVEREIN.

London, 30th August 1851.

MY LORDS AND GENTLEMEN,

IT is with feelings of deep gratitude that we, the Commissioners appointed by the Zollverein States, to draw up the report on the Exhibition of Industry of all Nations, at the close of our labours, respectfully beg to address Her Majesty's Commissioners.

We would indeed consider it a dereliction of that duty we owe to the generous English nation, and to our own country, if we were to leave England without acknowledging the many facilities afforded, the many acts of kindness shown to us by Her Majesty's Commissioners, and the Gentlemen officially attached to the Exhibition.

We also wish to express our high sense of the comprehensive and liberal views entertained by Her Majesty's Commissioners, and of the great judgment and kind consideration with which they have been carried out.

We sincerely believe that this great and unprecedented enterprise will materially tend to rivet the bonds of friendship which already so happily unite the Governments of both countries, and to foster between the two nations those feelings of amity and international good-will, on which so much depend the prosperity of commerce, the advancement of knowledge, and the spread of civilization.

We also beg individually to tender our most cordial thanks for the urbanity shown to us in every respect, and on all occasions, of which we shall always preserve the most grateful recollection.

We have the honour to be,
ROYAL HIGHNESS,
My LORDS and GENTLEMEN,
Your most obedient Servants.

(Signed)
GEORGE VON VIEBAHN, *Chairman.*
DR. VON HERMAN.
DR. STEINBEIS.
DR. RAW.
F. SCHREIBER.
H ROESSLER.
DR. GUSTAV SCHUETEN.
FR. ODERNHEIMER.
PHILLIPP ELLISSEN.
GROPIUS.

*The Commissioners of the German Zollverein,
for the Jury and the Report.*

*The Royal Commissioners for the
Exhibition of* 1851.

SECOND REPORT

OF

THE COMMISSIONERS

FOR THE

EXHIBITION OF 1851,

TO THE

RIGHT HON. SPENCER HORATIO WALPOLE, &c. &c.,

ONE OF HER MAJESTY'S PRINCIPAL SECRETARIES OF STATE.

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SUPPLEMENTAL CHARTER.

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, to all to whom these Presents shall come, Greeting:—Whereas, by a Charter under Our Great Seal, bearing date at Westminster, on or about the Fifteenth day of August, One thousand eight hundred and fifty, after reciting that We had issued Our Commission, under Our Royal Sign Manual, bearing date on or about the Third day of January, One thousand eight hundred and fifty, for the promotion of the Exhibition of the Works of Industry of All Nations, to be held in the year One thousand eight hundred and fifty-one, and had thereby for that purpose appointed Our most dearly beloved Consort, His Royal Highness Francis Albert Augustus Charles Emanuel, Duke of Saxony, Prince of Saxe Cobourg and Gotha, Knight of Our Most Noble Order of the Garter, and Field Marshal in Our Army, and the several other Persons therein mentioned, to make full and diligent inquiry into the best mode by which the productions of Our Colonies and Foreign Countries might be introduced into Our Kingdom, as respected the most suitable site for the said Exhibition, the general conduct of the said Exhibition, and also into the best mode of determining the nature of the Prizes, and of securing the most impartial distribution of them; and that We did thereby give to Our said Commissioners, or any three or more of them, certain powers and authorities therein contained; and reciting that it had been represented to Us by Our said Commissioners then acting under Our said Commission, that they had proceeded in the inquiries and in the execution of the other matters intrusted to them by Our said Commission, and that it was expedient not only to continue to them the said powers and authorities, but also that they should have full powers and authorities to carry out and conduct the said Exhibition, and for that purpose to nominate and appoint such number of persons as they might think fit, with powers and authorities adequate for the effectually carrying out, and conducting, and completing the said Exhibition, and all matters and things relating to and concerning the same; and that they had therefore prayed that We would grant to them Our Royal Charter of Incorporation for the purposes aforesaid: We did, by Our said Charter now in recital, grant and ordain that our said dearly beloved Consort, and the several other Persons therein mentioned, and the survivors or survivor of them, and such other persons, if any, as should be elected by them, as thereinafter mentioned, should be one Body Politic and Corporate, by the name of "The Commissioners for the Exhibition of 1851," and by that name should have perpetual succession subject as thereinafter provided, and a Common Seal; and We did thereby declare that the said Corporation should be established for the purposes thereinafter mentioned; and that the inquiries and matters directed to be made and done by Our said Commissioners should be made and done by the said Commissioners thereby incorporated;

and that no further proceeding should be had under Our said Commission; and that the capital or joint stock of the said Commissioners thereby incorporated should be such sums of money as had been then subscribed towards the establishment of the said Exhibition, and other the monies which should come to the hands of the said Commissioners thereby incorporated; and We did, by Our said Charter, authorize and appoint that the said Commissioners thereby incorporated should make such inquiries as are therein mentioned, and should carry out and conduct the said Exhibition in the year One thousand eight hundred and fifty-one, and distribute the Prizes, and do all matters connected with the said Exhibition and distribution of Prizes, and dispose of all monies which by any of the means therein mentioned should come to their hands, in all respects as they should think fit, towards the purposes of the Exhibition, or otherwise in the execution of the powers thereby given to them; and it is by Our said Charter provided, that when and as soon as all the matters and things entrusted to be done by Our said Charter by the said Commissioners thereby incorporated, should have been fully performed, or become incapable of being executed, and the same should have been certified in writing to one of Our Principal Secretaries of State, then Our said Charter, and every matter or thing therein contained, should be absolutely void; and whereas the said Commissioners so incorporated as aforesaid, did, by a Report made to Us under their Corporate Seal, and dated the Sixth day of November, One thousand eight hundred and fifty-one, state, amongst other things, that the Exhibition for the promotion of which they were appointed was finally closed on the Fifteenth day of October of this year, and that the Medals and Prizes had been awarded as in the Report is mentioned, and that the said Commissioners were then engaged in bringing to a close all the business connected with the Exhibition, and in defraying the various expenses incurred during its progress; that most of the claims on the funds at their disposal were then discharged, and that, after all should have been satisfied, a considerable surplus would remain, and that such surplus would consist in the balance which might remain in their hands after deducting all expenditure from the sum which had been received from subscriptions, entrance fees, and casual receipts; that of the entrance fees a portion had been paid by foreign visitors, and that it was owing to the fact that the contributions of all nations were there displayed that the number of visits made by persons attracted to the Exhibition amounted to upwards of six millions; that the subscriptions, with few exceptions, were derived from Our subjects, and were made after a public announcement that they must be "absolute and definite;" but that should any surplus remain, it was the intention of Our said Commissioners to apply the same to purposes strictly in connection with the ends of the Exhibition, or for the establishment of similar Exhibitions for the future; and further, the said Commissioners did, by their said Report, represent to Us, that for the reasons in the Report mentioned, they were of opinion that it was not advisable to apply the said surplus to the last-named purpose; and that they were of opinion that greater benefit might be derived by the public from a judicious application in the interval (between the last and any similar Exhibition) of the means at their disposal to the furtherance of the general objects for which the Exhibition was designed, and in such manner that the advantages which might be obtained should not be confined solely to Our subjects, but should be shared, as far as might be possible, by other countries; and further, that the said Commissioners were of opinion that no measures could be so strictly in accordance with the ends of the Exhibition as those which might increase the means of industrial education, and extend the influence of science and art upon productive industry; and the said Commissioners further stated in such Report that they were aware of the difficulty of devising a comprehensive plan to meet those objects, but that should the view which they had taken as to the manner of fulfilling their pledges meet Our approbation, the said Commissioners assured Us that they would give their fullest and most careful consideration to that important subject; and the said Commissioners suggested that time should be afforded to them to consider and mature such a plan as they should feel warranted in laying before Us; the more so as, from the disproportion between the end proposed and the means applicable to it, much would depend on the extent of co-operation they might receive from the public; and further, the said Commissioners stated that they were advised that their powers under Our said Royal Charter would cease when all the expenses incidental to the Exhibition had been discharged and notice thereof given to Our Secretary of State, and that they had no power of deciding upon the disposal of the surplus; and the said Commissioners stated, that if it were Our pleasure that they should act further in the matter, it would be necessary before they could take even any preliminary step, that We should grant to them, by Royal Charter, such further powers as we might deem necessary, to enable them to lay before Us a scheme for the application of the surplus in accordance with the expectations held out to the public, and with Our sanction and approval to adopt such measures as might be necessary for such purpose; and whereas all the matters and things entrusted by Our said Charter to be done by the said Commissioners have not yet been fully performed, and the Commissioners incorporated by Our said Charter still are and continue a Body Corporate; and whereas We are desirous of further continuing the same, and of granting to the said Commissioners so incorporated as aforesaid such further powers as are hereinafter mentioned: NOW KNOW YE, that as well on the suggestion of the said Commissioners so incorporated as aforesaid, as of Our especial grace, certain knowledge, and mere motion, WE DO, by these presents for Us, Our heirs and successors, grant and ordain that the said Commissioners so incorporated as aforesaid shall continue and be incorporated: And We do by these presents incorporate them accordingly, as well for the purposes for which they were so first incorporated as aforesaid, as for the purpose of devising a plan for the disposal of the surplus of all monies which shall, as aforesaid, remain at their disposal after all the expenses relating to the said Exhibition shall have been defrayed, and which in their opinion shall be in accordance with the expectations so held out to the public as aforesaid, and also in all respects for carrying into effect any plan or plans which may be from time to time devised by them as aforesaid. And We do hereby authorise and empower the said Commissioners to dispose of all such surplus as aforesaid, and the income thereof which may be at their disposal, in the furtherance of any such plan or plans as may from time to time be devised by them as aforesaid, and to lay out and invest the same, or any part thereof, till required for the execution of any such plan or plans, on such securities and in all respects as they may think fit, and generally to do and execute all and every matter and thing whatsoever which they may consider necessary to be done for the carrying out any such plan or plans as aforesaid, or in anywise relating thereto, or in maintaining and directing any Establishment or Institution to be founded in pursuance of any such plan or plans. And further, that for the purposes of carrying out any such plan or plans, or executing any of the matters aforesaid or otherwise incidental thereto, It shall be lawful for the said Commissioners from time to time to appoint any Committee or Trustees, or other persons, for the execution of any matters or things connected with the execution of any such plan or plans. And further, We do hereby declare that in addition to such surplus as aforesaid, it shall be lawful for the said Commissioners to receive any monies or other property and effects by way of contribution, fees, payments, or otherwise, from any persons or bodies, and to apply and appropriate such monies or property in all respects as the said surplus is hereby directed to be applicable, or specially to apply all or any part of any such contributions or monies which may be so received as aforesaid for any particular purposes or objects, which, in the opinion of the said Commissioners, shall be connected in anywise with any such plan or plans as aforesaid: And We do hereby declare that, for the purposes aforesaid, or any of them, the said Commissioners and their successors may, and We do hereby grant to them full license and authority to purchase and hold lands and hereditaments in any part of Our dominions, and that such lands and hereditaments may be from time to time appropriated, sold, leased, or otherwise applied or disposed of in all respects as the said Commissioners shall think fit: And We do hereby in all respects ratify and confirm Our said herein recited Charter, and do declare that the said Commissioners thereby incorporated, and the survivors or survivor of them, and other the persons to be appointed Members of the said Corporation, as in our said Charter is provided, shall continue incorporated under and by virtue of these presents, as well for the purposes declared by the said Charter as for the purposes hereby declared; and that the power of appointing and electing Members of the said Corporation hereby established, contained in our said recited Charter, shall, in all respects, apply to the said Corporation hereby made and established. And We do hereby direct that the said Commissioners so incorporated as aforesaid, may from time to time, when and as they shall think fit, under their Corporate Seal, report to one of Our Principal Secretaries of State on all and every or any of the matters which they may do under the powers hereby given. And further, that the said Commissioners shall in like manner report on all and every or any of the matters which they may do, when and as they may be thereto required by any one of Our Principal Secretaries of State: And We do further declare, that when as well all the matters and things intrusted to be done by Our said recited Charter by the said Commissioners thereby incorporated, as all the matters and things hereby intrusted to be done by the said Commissioners, shall be fully performed, or become incapable of being executed, and when the same shall have been certified in writing to any of Our Principal Secretaries of State by any three or more of the Commissioners for the time being Members of the said Corporation, then Our said recited Charter and these presents shall be absolutely void. In witness whereof, We have caused these Our Letters to be made patent. Witness Ourself, at Our Palace of Westminster, the second day of December, in the fifteenth year of Our Reign.

By Writ of Privy Seal,

EDMUNDS.

SECOND REPORT

OF THE

COMMISSIONERS FOR THE EXHIBITION OF 1851,

TO THE

RIGHT HON. SPENCER HORATIO WALPOLE, &c. &c.,

One of Her Majesty's Principal Secretaries of State.

SIR,

IN pursuance of the announcement contained in our Report of the 24th of April last, to the effect that we were engaged in making the necessary inquiries on the subject of the disposal of the Surplus Funds arising from the Exhibition, which will remain in our hands after all our liabilities shall have been discharged, we have now the honour to transmit to you this further Report, containing the result of our labours, as far as they have as yet proceeded, in order that it may be submitted to Her Majesty for Her approbation.

Preliminary Report to the Crown.

In a preliminary Report addressed by us to Her Majesty, on the 6th of November last year, we humbly stated that we had reason to believe that the surplus which would finally remain in our hands would not be less than 150,000*l.*; that it was owing to the international character of the Exhibition that much of its pecuniary success was attained; that we were of opinion that the best mode of applying the means at our disposal would be by furthering the general objects of the Exhibition,—those objects having been the advancement of human industry, and the promotion of kindly international feelings; but that we were advised that, under our original Charter of Incorporation, we had no power of deciding upon the disposal of the surplus.

We therefore humbly prayed that the Queen would be graciously pleased to confer upon us, by means of a Supplemental Charter, such further powers as might be deemed necessary, in order to enable us to lay before Her Majesty a scheme for the application of the surplus, and, with Her Majesty's sanction and approval, to adopt such measures as might be necessary for such purpose.

At the same time we assured Her Majesty that, if it were Her pleasure that we should act further in reference to this important subject, we would give it our fullest and most careful consideration; and we suggested that full time should be afforded us to consider and mature such a plan as we should feel warranted in laying before Her Majesty. But we took leave to state our opinion that the plan ought to be one which in its general character might serve to increase the means of Industrial Education, and extend the influence of Science and Art upon Productive Industry.

Supplemental Charter.

In accordance with the prayer of our application, Her Majesty was graciously pleased to confer upon us the Supplemental Charter, which is prefixed to this Report, and which bears date the 2nd of December, 1851.

This Charter gives us the power to dispose of the surplus in the furtherance of any plans that may be devised by us, to invest it in such manner as we may think fit, and generally to do whatever we may consider necessary for carrying out such plans, or maintaining and directing any establishment or institution to be founded in pursuance of them. It also empowers us to receive contributions in aid of the surplus, and to apply them in the furtherance of such plans; it gives us power to purchase and hold lands and hereditaments in any part of Her Majesty's dominions, and to apply or dispose of them in all respects as we may think fit.

It moreover confirms our original Charter of Incorporation, and declares that the power of appointing and electing Members of the Commission which it conferred upon us, shall in all respects apply to the Corporation established by the Supplemental Charter;* and it directs us to report from time to time, as we may think fit, to the Secretary of State, on all or any of the matters to which it relates.

The very extended powers conferred upon us by the Charter which Her Majesty has been thus graciously pleased to grant us, demand the expression of our humble thanks for this proof of the interest taken by Her Majesty in the objects of our incorporation, and at the same time of our deep sense of the responsibility imposed upon us by so gracious a mark of confidence.

Amount of Surplus.

In our Report of the 24th of April last, we stated that the balance remaining in our hands on the 29th of February, amounted to 213,305*l.* 15*s.* 8*d.*; that we were not then in a position to report with accuracy what portion of this sum would be the actual net surplus, after every liability had been discharged and the accounts finally wound up; and we instanced various items of expenditure which still remained payable before the amount of the net surplus could be correctly stated. But we at the same time repeated the belief, previously expressed by us, that in no case would that amount be less than the minimum of 150,000*l.*

It now affords us much satisfaction to give in the Appendix a statement showing the amount of the claims upon us that have been discharged since the above date, together with an estimate of our present liabilities, and of the probable net amount of the surplus, which will appear by it to be (in round numbers) 170,000*l.* (See Appendix A.)

Receipts and Disbursements since February.

In pursuance of the directions contained in our Supplemental Charter, to the effect that we should from time to time report to the Crown as to our proceedings, we shall not fail to lay before Her Majesty the necessary returns, duly audited, respecting our financial position, continued from the date of the former returns, viz., the end of February last. It will, however, be seen, by reference to the Appendix just mentioned, that our receipts and disbursements, in connexion with the winding-up of our accounts, for the eight months commencing March 1st, and ending October 31st, have been as follows:—

	£.	*s.*	*d.*
RECEIPTS	6,532	2	7
EXPENDITURE	25,199	15	3

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* The Commisioners elected in pursuance of this power, since the date of the First Report, are:—

1. Sir A. Y. Spearman, Member of the Finance Committee.
2. Mr. W. Coulson, Q.C.
3. Mr. C. W. Dilke, late member of the Executive Committee.
4. Mr. Shepherd, late Chairman of the East India Company, on his ceasing to be an *ex-officio* Commissioner.

Collection of Articles.

In addition to the pecuniary funds at our disposal, we are in the possession of a collection of articles which have been presented to us by exhibitors and by foreign Governments. The value of this collection has been estimated at nearly 9,000*l.*, and very many offers of further important contributions have been made to us, which contributions are only withheld until a suitable place of deposit for them shall have been provided. The collection at present in our possession has, by the gracious permission of Her Majesty, been temporarily deposited in Kensington Palace.

Suggestions an Applications a to disposal of Surplus.

A large number of suggestions and applications, in reference to the disposal of the surplus, have been made to the Commissioners; a tabular statement of the more important of which, specifying their nature, and the source whence they proceeded, is appended to this Report. (See Appendix B.)

The answer which the Commissioners have returned to the different applications submitted to them, has been to show, by reference to their preliminary Report to Her Majesty, of the 6th of November last year, that they do not feel themselves to be in a position to comply with proposals which involve the surplus being applied to purposes of a limited, partial, or local character, or to returning to the different localities, in order to be there appropriated to local public objects connected with the progress of Art, Science, and Education, the amount of subscriptions originally raised in each place, which subscriptions were at the time made on the clear understanding that they must be "absolute and definite."

The Commissioners would call especial attention to the memorials from the important manufacturing and commercial towns of Birmingham, Bristol, Halifax, Hull, Oldham, Sheffield, and the Staffordshire Potteries, which are appended to this Report, and indicate clearly the strong feeling entertained by those well entitled to form an opinion on this subject, of the importance of establishments for instructing those engaged in Trade and Manufacture in the principles of Science and Art on which their respective industries depend. (See Appendix C.)

General tende of such Memorials, an Commissioner views respecti them

These applications and the general tone of public feeling have confirmed the views of the Commissioners, as before expressed to Her Majesty, that the requirement most felt by the country is an Institution which, in the words already employed by them, should "serve to increase the means of Industrial Education, and extend the influence of Science and Art upon Productive Industry."

We are of opinion that if the surplus were applied in furtherance of one large Institution devoted to the purposes of instruction, adequate for the extended wants of industry, and in connexion with similar institutions in the provinces, it would be productive of important results; whilst, if subdivided amongst many local institutions, as suggested by some of the memorials to which reference has been made (such as those from Warrington, Blackburn, &c.), the effects produced would be comparatively insignificant.

It is further our opinion, that the greatest amount of benefit would be conferred on the community, if such an Institution as that indicated by us were established in the Metropolis, and rendered capable, by scholarships and by other means, of affiliating local establishments over this country, in India,* and Her Majesty's colonial possessions, whereby the results of its labours might be disseminated as widely as possible, and great advantage derived from a constant interchange of information between the parent institution and the bodies associated with it.

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* The desire felt in India for such Institutions is shown by the recent establishment at Madras of a Museum of Economic Geology, attached to which is a School of Industrial Arts.

It also appears to us desirable that the proposed Institution should act in concert with foreign Institutions of a similar character; and we also consider that every advantage which the new Institution might offer should be shared equally by the citizens of all countries, and that, by giving facilities to those who might desire to visit this country with a view to inform themselves on subjects relating to science, arts, manufactures, and commerce, some return might be made for the generous co-operation of all nations in the Exhibition of last year; a continuance of the friendly relations which we trust that Exhibition has inaugurated might be ensured; and this nation might continue to benefit by an interchange of knowledge with them.

The basis for the formation of the desired local connexion at home would appear already to exist in the Provincial Schools of Design, of which more than twenty are at present established in this country,—in various industrial institutions, such as the School of Arts in Edinburgh, the School of Mines in Newcastle, &c.,—and in the several Mechanics' Institutes belonging to different towns.

The Schools of Design are supported, at present, partly by Parliamentary grants, and partly by local subscriptions and the fees received from students; while the Mechanics' Institutes referred to have not only endeavoured of late years to extend their importance as institutions for systematic instruction, but have manifested a strong desire to enter into connexion with a central institution in London, as evinced at an important and influential meeting held at the Society of Arts on the 18th of May last, which has resulted in the union of more than 220 institutions, numbering upwards of 90,000 members, all in correspondence with that Society. (See Appendix D.)

The Royal Dublin Society, which receives an annual Parliamentary grant of more than 6000*l.* for the payment of its professors, and for the other purposes of the Society, and which is in the habit of sending lecturers to the provincial towns, on their application, may also be instanced.

Institutions for Industrial Instruction exist in most of the Continental States, and have been growing into increased development during the last fifteen years. The marked increase in continental production has been partly ascribed to the knowledge of natural forces communicated to those engaged in industry by these institutions. In countries in which fuel and the materials of machinery either did not exist, or were not abundant, it was natural to depend more upon the intellectual element of production than in this country, where their abundance gave an impulse to labour, and created much practical experience. It has long been a principle of Foreign States that the application of science and art to production would more than balance a greater cheapness in raw material; and that the increased facilities of locomotion rendered the latter of less value as an element of manufacture, while it enabled the experience of other nations to be more readily acquired, and consequently would, in process of time, convert industrial competition into one involving the most economical application of natural forces. We beg to refer to extracts (see Appendix E) from a lecture by Dr. Playfair, who has recently visited many institutions for industrial instruction abroad, and who describes them as being, generally, in a high state of efficiency. The best proof of their utility to production is, that there is a constantly increasing demand, by those engaged in industry, for the pupils reared at them; and, as a consequence of this, it is found that the number of pupils is everywhere augmenting. It is calculated that in Germany alone 13,000 men annually receive the high technical and scientific training of the Trade Schools and Polytechnic Institutions; while more than 30,000 workmen are being systematically taught the elements of science and of art, in schools which communicate instruction to them in their leisure hours.

Besides the Trade Schools which are now scattered throughout Germany, there are important institutions, equivalent to Industrial Universities, in the capitals of nearly all the German states. Their systems of instruction have certain variations, but they are all agreed upon the general principle, that their object is to teach the principles of science and art upon which production depends, explaining fully the variations and nature of technical processes, but leaving them afterwards to be practically learned in the workshop or the factory. They rather teach a pupil how to be an intelligent manufacturer than profess to make him one at the institution. Elementary knowledge in science is rarely given at these higher schools, as the pupil who enters them must previously possess it, the courses of instruction there being devoted to the application of that knowledge. So essential to the progress of industry are these Technical Colleges considered, that even small states, such as the Grand Duchy of Baden, support them at great expense. Thus the Institution at Carlsruhe, situated in a large and commodious building, with every appliance of museums, laboratories, and workshops, teaches 330 pupils, with the aid of no less than 41 professors and teachers. In France the *Ecole Centrale des Arts et Manufactures,* a private institution raised by private capital, which has found and continues to receive the most ample remuneration in its success, annually educates 300 pupils in the highest branches of applied science and art; while its influence on industry has been found so important, that the Government and the Councils-General of 29 departments of France have established Exhibitions in connexion with it, in order to educate poor persons of extraordinary talent. The pupils of this establishment find immediate employment on leaving the school, and already above 500 of them are known to be holding stations of much importance in almost all parts of the world. The school is now found to be too small for the demands of French industry, and its enlargement is under contemplation. We must, however, simply refer to the extracts from Dr. Playfair's lecture for further information on the industrial institutions of other countries, both as regards the instruction of the middle classes and of artisans, remarking that the evidences of the increase in the number of the pupils, as well as the readiness with which they obtain employment, would afford sufficient proof of their influence upon industry, were there no other direct testimony to the important influence which they are exercising on the rapid development of production in foreign states.

List of existing Institutions in London.

In considering what has been already done by the public in this country to promote the interests of Science and the Arts, and the diffusion of scientific principles amongst those engaged in their practical application, the Commissioners find that much zeal has been shown in this respect, as will be seen

by the following list of institutions now established in and about the Metropolis alone which have these objects more or less in view :—

Academy of Music, Royal
Agricultural Society, Royal
Antiquaries, Society of
Apothecaries, Society of
Architects, Royal Institute of British
Archæological Association.
Archæological Institute.
Art-Union of London.
Arundel Society.
Asiatic Society, Royal
Astronomical Society, Royal
Beaumont Literary and Philosophical Institution.
Botanical Society of London.
Botanic Society of London, Royal
British Association for the Advancement of Science.
British Institution.
Camberwell Athenæum.
Camberwell Institute for the Industrial Classes.
Camberwell Literary and Scientific Institution.
Cavendish Society.
Chemical Society.
College of Chemistry.
College of Physicians.
College of Surgeons.
Crosby Hall Literary and Scientific Institution.
Entomological Society.
Epidemiological Society.
Ethnological Society.
Floricultural Society.
General Literary and Scientific Institution.
Geographical Society, Royal
Geological Society.
Greenwich Society for the Diffusion of Useful Knowledge.
Hackney Literary and Scientific Institution.
Hammersmith Literary and Scientific Institution.
Harveian Society.
Highgate Literary and Scientific Institution.
Horticultural Society.
Hunterian Society.
Institution of Civil Engineers.
Islington Athenæum.
Islington Literary and Scientific Society.
Jews and General Literary and Scientific Institution.
Kensington Institute.
Kentish Town Literary Society.
Linnæan Society.
Literature, Royal Society of
London Institution.
London (East) Literary and Scientific Institution.
London Library.
London (City of) Literary and Scientific Institution.
London Mechanics' Institution.
London (City of) Mechanics' Institute.
London (North) Artisans' Drawing and Modelling School.
London (South) Chemical and Philosophical Society.
London (West) Literary Institution.
London and South-Western Literary and Scientific Institution.
Marylebone Literary & Scientific Institution.
Marylebone and Paddington Literary and Scientific Institution.
Medical Society of London.
Medical and Chirurgical Society, Royal
Medico-Botanical Society.
Meteorological Society.
Microscopical Society.
National Institution of Fine Arts (Portland Gallery).
Numismatic Society.
Ornithological Society.
Palæontographical Society.
Pathological Society.
Pharmaceutical Society.
Pimlico Literary and Scientific Institution.
Polytechnic Institution.
Poplar Literary and Scientific Institution.
Ray Society.
Rotherhithe and Bermondsey Literary and Scientific Institution.
Royal Academy.
Royal Institution.
Royal Society.
Russell Institution.
St. George's Lending Library.
St. James's Literary and Scientific Institution.
Society of Arts.
Society of British Artists.
Society of Painters in Water Colours.
Society of Painters in Water Colours (New).
Southwark Literary Institution.
Southwark and Lambeth Artisan School for Drawing and Modelling.
Statistical Society.
Sydenham Society.
Syro-Egyptian Society.
Walworth Literary and Scientific Institution.
Western Literary and Scientific Institution.
Western Medical and Surgical Society.
Westminster Literary and Scientific Institution.
Whittington Club and Metropolitan Athenæum.
Woolwich Literary, Scientific, and Mechanics' Institute.
Zoological Society.

The list of these institutions (about one hundred in number), which is probably far from complete, will serve to indicate the great extent to which the Public voluntarily tax themselves for the purpose of advancing the above-mentioned ends.

Annual Expenditure on them.

It is not easy to give an exact statement of the total sum annually expended in London on institutions such as those now alluded to, but from information obtained from the balance-sheets published by a considerable number of them, and from other sources, the Commissioners have ascertained that they are not over-estimating it in stating it at 160,000*l*.

It is well known that a very considerable portion of the expenses at present incurred by each society is for house-rent, taxes, and items of a similar nature, all of which outlay is of course deducted from the purposes of utility to which it might otherwise have been applied.

National Institutions in London, and their Annual Cost to the Country.

In addition to the private institutions and societies comprised in the above list, there are several of a national character which are solely supported by the public money, and which it is necessary to refer to, in order to show what is at present being done in the Metropolis alone towards the promotion of Science and the Arts. We need only mention the British Museum, the National Gallery, the Museum of Practical Geology, and the School of Mines attached to it, and the Department of Practical Art (known until recently as the School of Design).

The amount which it is proposed to expend on each of these during the present financial year, as shown by the estimates submitted to Parliament last Session, and voted by it, will be seen by referring to Appendix F. The total annual outlay on these national institutions, independently of the sums intended to be spent in connexion with them, but out of London, appears by this Return to be about 95,000*l*., which if added to the sum of 160,000*l*. just estimated, would represent a total expenditure in this capital of more than a quarter of a million sterling per annum on the above-mentioned public and private institutions; a fact which, while it shows that much effort both on the part of the State and of the Public is made for the promotion of Science and Art, makes it the greater subject of regret, that, owing to a want of unity and combination, they produce comparatively small direct benefit to Industry.

Society of Arts' Lectures on the Exhibition.

The real wants of this country, as shown by the Exhibition of 1851, have been most ably set forth in a series of Lectures recently delivered at the Society of Arts, in pursuance of a suggestion made by His Royal Highness Prince Albert, the President of the Society.* (See Appendix G.) These "Lectures on the Exhibition" point out very clearly the impediment to the development of British Industry that has hitherto existed, owing to the want of means of scientific instruction, both general and specific, in the different branches of Industry.

A few extracts from these Lectures will not be deemed uninteresting, as evincing the strong opinion entertained by some of the most eminent of the scientific and practical men of this country as to the necessity of providing such instruction, if England is to maintain her position as an industrial nation.

Professor Willis uses the following language in his Lecture on "Machines and Tools for Working in Metal, Wood, and other Materials":—

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* These Lectures are published by Mr. Bogue, in Fleet Street.

"There are two very desirable objects which I shall proceed to develop, and which, if we take advantage of the interest excited on the subject of manufacturing Science and Art by the Great Exhibition, we may possibly succeed in bringing to bear.

"The first object is to effect a more intimate union and greater confidence between scientific and practical men, by teaching them reciprocally their wants and requirements, their methods and powers, so that the peculiar properties and advantages of each may be made to assist in the perfection of the other.

"The second object is to promote a more universal knowledge amongst mechanics and artisans, of the methods and tools employed in other trades than their own, as well as of those employed in other countries in their own and other trades.

"With respect to the first object, it is no secret that there has always existed an unfortunate boundary-wall or separation between practical and scientific men, a mutual distrust or misunderstanding of their relative values, which has deprived them of many great benefits that they might have mutually derived from each other's pursuits. It is true that in many branches of Science, as in Chemistry, Geology, and Botany, this barrier has to a great extent been broken through; the practical man has found the benefit of scientific generalisations, and the theorist has been compelled to seek the facts upon which his theories are to be based in the mines and manufactories; thus compelling the two classes to work together and learn to understand each other. Still there remains too much of the ancient contempt for 'theory,' and of an overweening and conceited value for 'facts' and 'practice.'

"In no department of science is this carried to a greater extent than between the mathematical and practical mechanics; and yet the mental process by which the parts of a complex machine are contrived and arranged in the brain of the inventor requires the geometrical faculty, as it is called, to a very high extent; that is to say, the power of conceiving mentally the relations of the parts of complex figures in space. So that, in truth, a man gifted by Nature as a mechanist is also qualified as a geometrician; and the untaught inventor, struggling to give form and reality to his conceptions of a new machine, is, in reality, practising imperfectly and unknowingly the very geometrical science he despises, and which, if he had acquired its elements, would at once have shown him how to systematise and arrange his ideas.

"For the system of Mathematics, as it now exists, is the accumulated result of many centuries' work of men thus naturally gifted with the geometrical faculty; and the man who now, directing this mental power to the confection of machines, professes to exercise it 'self-taught,' is acting on the presumption that he alone can begin from the beginning, and dispense with the labours of those men of mighty intellect who worked so long to prepare a system for those who were to come after them. To ignore such labours is a piece of mighty presumption and a pure waste of intellect, which usually brings its own punishment, in the loss of time and imperfection of the result. 'Self-teaching,' in this sense of determined rejection of the previous labours of others, so far from being a source of pride and gratification, is a piece of folly, to use the mildest term, if it might have been avoided; and a lamentable misfortune, if the sufferer has had no opportunity of knowing what had been already previously effected and prepared by others in the same line.

"Of a piece with this is the case of persons who pride themselves upon executing very difficult works with implements not intended for the purpose, such as elaborate carving, which, we are told, was all done 'with a common penknife.' The experience of carvers of all ages having shown that there are certain forms of chisels and gouges that are proper for this work, a sensible man would certainly not waste his time by using the worst form of a cutting instrument that he could choose for this particular service. So far from admiring, we should pity the vanity and folly of such a display; and the more, if the merit of the work should show a natural aptitude in the workman; for it is certain, that if he has made good work with a bad tool, he would make better with a good one."

Mr. Bazley, President of the Manchester Chamber of Commerce, speaks as follows in his Lecture on "Cotton as an Element of Industry":—

"The contemplation of the difficulties arising from increased competition may be of signal benefit to those especially who desire to maintain and increase the industrial celebrity of Great Britain; for, with the knowledge of approximating and rival skill, the exercise of a cool and sober judgment will prompt the necessity of perfecting mechanical agents, of increased intelligence and attention of the workmen, and on the part of master manufacturers of a complete theoretical and practical acquaintance with the principles on which sound manufacturing operations are founded, together with the most economical and best engineering arrangements for conducting with success the large concerns embarked in manufactures. . . . . . The labour of the increasing numbers of the people of this country forms one of the extraordinary raw materials that employment must be provided for; and whether it shall continue to be exerted upon cotton, posterity may know, but we cannot, though in our age and generation we may resolve at least to promulgate sound economical principles, and strive, in providing for the exigencies of our own time, to leave behind us the heir-loom of a national estate unencumbered with impediments to industry, the present and future source of wealth and comfort. . . . . . If the labouring classes of the United Kingdom were well educated, their superior attainments would be alike more profitable to their employers, by increased skill, and a nearer approximation to perfection; and to themselves, not only in augmented rewards, but in the knowledge that would promote their general comfort and each other's welfare."

Mr. Henry Forbes, late Mayor of Bradford, again, whose Lecture was on "The Rise, Progress, and Present State of the Worsted, &c., Manufactures of Great Britain," points in the same direction, when he says:—

"Amongst the many advantages of the late Great Exhibition, none was more striking than the opportunity which it afforded of studying the comparative manufacturing capabilities of our own and other countries. Englishmen were taught the useful lesson that we possess no monopoly of inventive genius or practical skill; and that to maintain our position it is indispensable that we spare no effort and relax no energy. It was in the Department of Design that our English deficiencies were most apparent, and no greater benefit could be rendered to the worsted trade than the introduction of a purer and more cultivated taste, not only amongst the producers, but also the consumers of our fabrics, by an extension and improvement of our plans of Art-Instruction. This was mainly to be effected by indoctrinating the pupil with the true principles of art, and placing before him specimens illustrative of the right application of these principles to the specialties of his own particular manufacture."

Many similar passages from the lectures of the other gentlemen might be cited to the same effect, both showing the importance of no time being lost in commencing a movement for the extension of industrial instruction, and specifying particular instances of the injury sustained from the absence of it. One or two of the latter, taken from lectures recently delivered at the Museum of Practical Geology, are given below.*

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* Mr. Warrington Smythe (Inspector of Mines to the Duchy of Cornwall), in his Introductory Lecture to the Course of Mineralogy and Mining, used the following language :—

"The mining districts of Great Britain are so utterly destitute of the means of Mineralogical education, whether in schools or suitable collections, that it need be no source of wonder to find the most intelligent miner acquainted only with some two or three of the substances which in the routine of his employment have been brought prominently before him, and often neglecting others from ignorance of their nature, or dangerously confounding things which are totally distinct from each other. It is matter of history, that the copper ores of Cornwall were recognised as useful only at a comparatively late date, the miners having concentrated all their attention upon the tin with which that county was so plentifully supplied. More wonderful does it appear, that even at the commencement of the last century, when the yellow ore or pyrites had been long appreciated, the far more valuable redruthite, or sulphide of copper, was thrown as worthless rubbish over the cliffs of St. Just into the Atlantic: and Pryce informs us that "many thousand pounds' worth of the rich black ore, or oxide of copper, was washed into the rivers and discharged into the North Sea from the old Pool mine."*

"These might be considered as the errors of a past age, but we may recollect that they occurred at a time when the value of the same substances was understood in other countries; and by mere accidental rencontres similar cases are still not unfrequently brought to our notice.

"During a visit, three or four years since, to a mine which was supported chiefly by raising blende, the sulphide of zinc, my attention was attracted by a lump of white mineral lying on the window-sill of the office, a single glance at which was sufficient for recognition; and I put to the agent a few questions regarding its nature and occurrence. He replied that it was nothing but 'spar,' and that in working a particular part of the lode they had met with many tons of it, which, however, had been all, except this accidentally preserved specimen, irretrievably mixed with the rubbish heaps. The surprise of my informant was not small, when he learned that the so-called 'spar,' confounded by him with quartz, was calamine, an ore containing in its pure state above 60 per cent. of oxide of zinc. Not to leave the same metal and its ores, which put on a great variety of characters, I have known zinc-blende taken for lead-ore, and honoured with the erection of a smelting furnace, when, to the chagrin of the manager, the volatile metal flew away up the chimney, leaving only disappointment and loss behind. Again, from a faint resemblance which some of the varieties bear to certain iron-ores—a resemblance which would at once disappear before accurate observation—a considerable quantity was

Pryce, Mineralogia Cornubiensis, 1778.

Principles to be followed in disposing of the Surplus.

The Commissioners cannot but be sensible that the sum at their disposal as the Surplus Fund of the Exhibition is altogether inadequate to the complete development and satisfactory execution of a plan of the nature contemplated by them. They feel that if the country requires such a step to be taken as the one

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bought, not long since, by one of the greatest iron-masters in this country. It was carried to the furnaces, duly mingled with fuel and flux, and after a strenuous effort had been made to get it to yield iron, it all, as the proprietor naïvely remarked, 'went off in smoke.'

"Blunders of this kind are more excusable when made in regard to some of the minerals of comparatively rare occurence. An active agent of my acquaintance, a man of high character, was requested by a couple of his friends, who gave themselves credit for uncommon sagacity, to join them in forming a company to work a deposit of an unusual ore which they had lately found. Already they had referred it, for corroboration of their opinion, to a person at Birmingham styling himself a mineral chemist, whose report set forth that the specimen shown him was, as the others had suspected, an ore of molybdenum, and that it was worth 8*l.* per ton. This was sufficient to induce the agent to join the discoverers in a journey to the place in question, and at the head of a remote valley, embosomed among the rugged hills of Cambria, he was gratified with the view of such a mass of the same substance that it was evident that thousands of tons might be quarried at a mere nominal price. Specimens were broken, the party returned to consider the preliminaries of their adventure, and it was agreed that the mineral corresponded pretty nearly with the description of sulphuret of molybdenum in some book which was at hand. Still, the more cautious manager feared that the prospect was too bright to be real, and without consulting the others, expended a fee in sending for a good analysis to a scientific chemist in London. The result was, that the substance in question proved to be a shining, black, slate-clay, not applicable to any use, except perhaps to make bricks.

"Within a gun-shot of the place where the above-mentioned agent related this anecdote, the appearance of some rather ferruginous slate-rock attracted the attention of a party of credulous speculators, who, believing they had discovered a rich iron-ore, actually built a blast furnace, erected the necessary machinery, and continued for some time to carry out their vain attempt, deluded by the fraudulent practices of the workmen. As might, however, have been predicted, the undertaking soon ended in abandonment and ruin.

"In other mining districts I have known persons, who although possessed of great general intelligence, have collected blue stones (general ores of copper) for cobalt, ignorant of the fact that none of the natural combinations of this valuable metal possess a blue colour.

"The sulphate of baryta has for a few years past borne a certain value for manufacturing purposes: and an instance was brought to my notice, where a ship-load of what was supposed to be this mineral was obtained by surreptitious means, and sent from a distant part of the country to London. But the biter was bit, for his observation was faulty, and his cargo, proving to be calcareous spar, was worthless. It would tire out your patience to enumerate the cases in which mica or iron pyrites have been mistaken for gold. From the anxious country gentleman in our own land, to the disappointed Californian gold-seeker, and to the solemn Turkish Bey mysteriously unwrapping from many a folded rag the specimen of his expected wealth, such victims of mineralogical ignorance are frequently presented to those whose pursuits bring them into a position for advising on similar points.

"But there is another and a wider field far more important than the correction of isolated mistakes, in which mineralogical research has yet to be largely employed, and in which the connexion of this subject with mining is no less grave than intimate. The principles by which the accumulation of ore in lodes or metalliferous veins has been regulated are to this day so enveloped in mystery, that the prosecution of mining enterprises is almost as much a matter of chance as it was with our forefathers three centuries ago."

Professor Edward Forbes, in a similar introductory lecture on the "Relations of Natural History to Geology and the Arts," gives the following striking illustrations, to the same effect:—

"Not long ago considerable funds were spent in a district in the west, in a useless search which their inquiries have led them to consider desirable, the active co-operation of the State, as well as of the public at large, will be necessary in order to obtain all the benefits which may be hoped for from it. The Commissioners, however, feel it their duty to deal with the funds in their hands in such a manner as may ensure the greatest amount of advantage being derived from the mode of their application; and they consider that in no manner could this be ensured so well as by carefully preparing the basis and framework of a large and comprehensive plan and securing facilities for its execution, leaving it to the various interests concerned to give substance to it, whilst the perfect development of the system must be left to the progressive action of time, commencing with the wants at present manifested, and extending it as those wants become greater and find expression on the part of the public.

Difficulties at present existing in this country.

In investigating the causes which have led to the deficiency in England of larger institutions of the character alluded to, and the reasons why the great

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for coal. The adventurers, ignorant of geology, had set to work in dark Silurian shales, among the oldest of stratified rocks, and far beneath our carboniferous strata. Their mineral aspect, however, resembled that of certain coal-shales with which the miners were familiar. Had they possessed even a slight acquaintance with organic remains, they would have abandoned their profitless experiment at the very commencement; for the shales in which they were working were charged with graptolites, extinct zoophytes, which do not range higher than the lowest fossiliferous group, and the presence of which indicated the true character of the strata beyond question. The fossils did not escape the notice of the miners. They collected them, and grew the more confirmed in their mistake; for, unacquainted with the differences, they mistook them for coal plants. They might have bored through the earth's centre without coming to the treasure they sought; their only chance of reaching it was by perforating quite to the antipodes.

"In a second example I was myself personally concerned. Some years ago, when as yet but a student attending the geological and mineralogical lectures of Professor Jameson, I opposed by letter in a provincial journal, a mistaken enterprise upon which much money was unfortunately spent. The object of it was to sink through the old red sandstone, with the hope of reaching coal, in a district where such a search was hopeless. The parties engaged were confirmed in their intentions by the advice of practical coal-miners well acquainted with the collieries of the north of England. These men argued, that since there was limestone and sandstone similar to those rocks associated with coal, and overlying it, in the districts where they had worked, therefore the strata were the same, and coal should be found. I pointed out, chiefly from the evidence of the fossils contained in the limestone overlying the sandstone, that the rocks on which they proposed to operate were only like to, but not identical with, those to which they were compared. I told them,—the warning was proffered in vain,—that they were throwing away their money. One of the shareholders, an intelligent man and a reader of elementary works on geology, replied to my objections by attempting to meet them on scientific grounds. In some old-fashioned books it used to be asserted, that shells of the genus *cardium*,—in plainer language, cockle-shells,—when found fossil, are characteristic of tertiary strata. "Now," wrote my opponent, "cockles abound in the limestone in question, therefore it is tertiary, and the carboniferous strata must lie beneath." He had mistaken certain forms of *terebratula*, shells of a very different order, for cockles; a very unfortunate mistake, for the error was persisted in, and much good gold turned into irredeemable dust."

Dr. Playfair mentions the following instance as having occurred to himself within the present year:—"A large smelter of lead brought to me a specimen of a heavy white mineral, which occurs in considerable quantity in his mines, and which he laid aside as sulphate of barytes, in the hope that he might sell it for the purpose of adulterating white lead. He was much astonished when I told him that this white mineral was in fact white lead, much richer in the metal than the black ore which he was accustomed to smelt."

amount of private exertion and of State endowment already mentioned has not operated with all the advantage that might have been looked for, we have found two, which have more especially attracted our notice: the first being the want of that harmony of system which would admit of an economic and combined action of the forces already in existence towards a common end; and the second, the want of actual space for their development in this overcrowded metropolis, a difficulty which is daily increasing, and which is peculiarly great in this country, in consequence of the nature of the tenure on which ground is in many cases held, and the terms on which leases are granted, whereby the most serious inconvenience to existing institutions and societies is frequently caused. The following instances of the latter of these difficulties, namely, the want of actual space, have, amongst many others, come to the knowledge of the Commissioners.

Instances of want of space.

Royal Society.

With regard to the *Royal Society*, they understand that strong representations were recently made by that body to Her Majesty's Government for additional accommodation. The rooms occupied by the Society in Somerset House, and which are much wanted for public offices, are quite inadequate to hold the valuable library at present possessed by it, a difficulty which must be constantly increasing. Even now it is found impossible to arrange the Admiralty Charts belonging to it, or books of a large size, thus preventing their being made available for reference by the Fellows. The whole of the income of the Society, which averages about 2,700*l.* per annum, is expended in scientific purposes; and, considering the good which it has done, and still continues to do, it feels that it has strong claims upon the country for increased accommodation.*

School of Mines.

The *School of Mines*, in connexion with the Museum of Practical Geology, was opened on the 6th of November last year. The chemical laboratory attached to the school, and which is calculated to accommodate only twenty students (although thirty-three are now actually at work in it), was immediately filled, and a warehouse has been temporarily fitted up as a laboratory, in order to furnish increased accommodation. Sir H. De la Beche's report, accompanying the estimates for the year 1852 53, after stating that it had become necessary to refuse additional pupils, proceeds as follows:—

"The want of accommodation is a circumstance to be regretted, as Practical Chemistry in the laboratory is very important to the students at the school. The limits in this direction must prevent that considerable increase of students next session which, from the many applications which have been made, there is every reason to believe would take place."

When it is borne in mind that, in an institution like this, the size of the laboratory is the real gauge of its usefulness, the unfortunate effect of such a state of things is too obvious to require comment.

School of Design.

In the case of the *School of Design*, representations on the subject of the want of space in the apartments at Somerset House, to which it was confined for many years, have been frequently brought under the notice of the Government, and the same point was strongly urged in the Report of the House of Commons' Committee of 1849 respecting the school. It had even been necessary to divide the school, and place the male and female branches of it in different parts of London. In order to provide a temporary remedy for the inconvenience caused by this want of space, Her Majesty has, of her own gracious motion, been pleased to authorize, for a limited time, the use of certain apartments in Marlborough House for the purposes of the department; but even these are so restricted in their size and number, that the Superintendents have been obliged to avail themselves of the domestic offices, &c.

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* In addition to the above sum, the Society has of late received 1,000*l.* annually from Government, to be applied by it to special scientific purposes.

College of Chemistry.

The *College of Chemistry*, which was established in 1845, has been greatly impeded in its development by its inability to obtain the necessary ground for building a lecture-room.

National Gallery.

The very great want of accommodation in the present *National Gallery*—and the absolute necessity of obtaining more space, and putting an end to the anomaly of such a collection of pictures as that possessed by the nation being obliged to be exhibited in separate buildings at some distance from each other, in neither of which can the pictures be properly displayed, in consequence of their number, considered in reference to the size of the rooms—are too well known to render it necessary to do more than refer to them.

Society of Arts.

The *Society of Arts* have applied to the Commission for a portion of the surplus in order to aid its Building Committee to find more adequate accommodation for its wants, the absence of which accommodation at present prevents it from entering upon a more enlarged sphere of usefulness.

Collection of Mediæval Art.

It will be remembered that, on the occasion of the rebuilding of the Houses of Parliament, the Government formed a collection of casts, at a great expense, for the use of the works. One portion of this collection, consisting of 3,489 specimens of enrichment taken from the best examples in this as well as in foreign countries, for the guidance, as to style, of the carvers employed in the decorative portion of the building, is at present partly at the Government Works at Thames Bank and partly at the New Houses of Parliament, but is intended to form a portion of a National Museum of Mediæval Art, when proper accommodation can be provided. The remainder of the collection (the cost of which has been about 7,000*l.*), consisting of 3,282 casts from models prepared for the stone and wood carvings already executed at the building, is deposited in the basement of the workshops at Thames Bank, where the casts cannot be properly displayed.

Map Office.

The absence of a *Map Office* in London (where naval charts might also be exhibited), and the want of proper accommodation for an object which would appear so indispensable for a maritime and commercial country, may also be mentioned. The *Geographical Society* has made repeated applications to Government for rooms where it might be enabled to display its collection of maps better than at present.

As a further illustration of the want of space to which they are now alluding, the Commissioners would refer to the case of the *Royal Academy*, where the greatest inconvenience is caused by its being necessary to close most of the schools during the four summer months, when the light is best adapted to the study of drawing and painting, solely because the rooms are required for the purposes of the annual exhibition. A memorial to Her Majesty on the subject, from the President and Council of the Academy, in which the practical inconveniences of the want of sufficient accommodation are clearly set forth, is appended. (See Appendix H.) The interruption of the tuition, by giving desultory habits of study to the pupils, is found to be productive of much injury. Royal Academy.

But no case affords such an illustration of the lamentable want of space now referred to as that of the greatest national institution in this country, the *British Museum*, in which there is scarcely a single department where extreme practical inconvenience is not sustained in consequence, while the impediment thereby opposed to the advancement of science is self-evident. It will suffice to mention the following examples of overcrowding in the Museum:— British Museum.

The Department of *Printed Books*, which now contains about 480,000 volumes, has more than doubled in extent since 1836, the increase having been at the rate of 16,000 volumes a-year; and at least an equal rate of increase in future years must be looked for, and a due provision for it ought, as a matter of course, to be made. Almost the whole of the space, however, that can possibly be applied to the purposes of the department is now occupied, and the inevitable consequence must be, that unless additional accommodation be provided, books received in future will be unavailable for any useful purpose, and it appears that even already the collection is falling into arrears. It is the opinion of the head of the department, that, in order to render the Library worthy of its name and of the country, provision ought to be made for its being doubled in the next 30 years, and he most strongly urges the necessity of no time whatever being lost in providing additional accommodation in order to enable the collection of printed books to keep pace with the demands of the public.

It is also evident, that in proportion to the increase of the Library must be the increase of accommodation to readers; but, even at present, the Reading-rooms of the Museum are far too small for the number of students making use of them, who are exposed to great discomfort in pursuing their researches.

A Minute of the Trustees of the 5th June last, states that "the want of accommodation for printed books and for readers is daily more and more felt, and will, in a few months, be a most serious evil," and proceeds to urge that immediate steps should be taken for affording increased accommodation.

In the Department of *Antiquities*, the amount of available space is most inadequate for the display of the present collection, and it has been found necessary to deposit all the later Roman Works of Art, the Sepulchral Monuments, Inscriptions, the Etruscan, Mexican, and Indian Antiquities, &c., in the basement or cellars, the access to which is inconvenient and the light defective. The head of the Department reports that the present possessions of the Museum are, in almost every room, crowded together and piled over each other like goods in a warehouse, and that it is almost impossible to attempt correct classification or satisfactory arrangement. He gives particular instances of want of space in the case of the Egyptian, Assyrian, Lycian, and other collections, the tessellated pavements and terra-cottas (now packed in boxes), the Ethnographical Collections, &c. &c.; and states generally, that "Europe cannot show any building so ill adapted for its intended purpose as the British Museum."

The Department of *Prints and Drawings*, which increases its collection at the rate of 2300 a year, is confined to one room, which is very little larger than the one occupied by it fifteen years ago. It has been found necessary to appropriate to the Department of Antiquities, for the exhibition of the Assyrian Marbles, the gallery that had been intended for the display of prints and drawings,—the want of which is greatly felt, but must now remain unsatisfied.

As respects the Department of *Natural History*, and its three divisions of *Mineralogy*, *Zoology*, and *Botany*, the evil is as great as in any other department. In the *Mineralogical* section, the keeper reports that all the objects added to the different collections are placed promiscuously, partly with some show of arrangement, partly without any attempt at it, in all such vacant portions of one of the galleries as could afford temporary accommodation for their preservation; and he states that although the space devoted to the division under his charge has been increased as far as possible, the necessity of extending the locality assigned to it on a larger scale cannot for a moment be doubted.

In the division of *Zoology*, it appears that the collection has increased tenfold since 1836, while the space assigned to it has only been increased threefold. Nearly one-half of the additional specimens are kept in rooms on the basement, which are only accessible to the public on special permission. At least 20,000 square feet additional are required to render the present collection accessible. The *Osteological* collection, or collection of skeletons of vertebrated animals, by far the largest and most complete ever formed in this country, and the exhibition of which is of the greatest importance to the progress of zoological science, is now deposited in the cellars, where the collection of animals in spirits is also placed. The chief of the division strongly urges the necessity of space being provided for the exhibition of these two collections; as, until they are exhibited to the public, and arranged in the same order as the stuffed animals, the students visiting the Museum are deprived of half the assistance in their studies which the collections might, and ought to afford them.

The progressive extension of the *Botanical* division, to which more than 50,000 specimens have been added since 1836, has caused the space allotted to it (which had previously been nearly doubled) to be already filled, and it will soon be necessary to remove part of the collection to the basement, where the engraved copper-plates illustrative of the division are at present deposited.

It is thus evident that, although the Trustees of the British Museum have availed themselves of every resource which the existing buildings are capable of affording, and have endeavoured in every way to overcome the difficulties arising from want of space, they have found it impossible, much as the Museum has been enlarged of late years, to make the necessary arrangements for properly displaying even the present collections, without taking into account the necessity of providing for future increase. It is estimated by them that an outlay of 250,000*l.* would be required in order to provide adequate accommodation for the rapidly increasing Library of the Museum, and the other collections above mentioned.

Besides these and many other instances which might be cited, there are objects of much public utility which it has been found impossible to carry out on account of the difficulty of procuring space. In the recent discussions on the subject of the Patent Laws, for instance, constant reference was made to the want of a building in which models and plans of inventions might be deposited for the advantage of the inventor and the information of the Public.

Having regard, then, to the different questions which we have now briefly touched upon, we beg to represent that it appears to us that the two things to be aimed at, as the preceding observations will serve to show, are the adoption of a *system*, and the securing of a *locality* where that system may be developed. We feel that we are best discharging the duties intrusted to us by Her Majesty, by submitting for consideration and discussion on the part of the public such a system, and by ourselves providing such a locality, bearing in mind that the filling up of the plan that may be adopted must be left to the wants expressed, to the interest felt by the public at large, and to the voluntary efforts of institutions, societies, and individuals, aided by the efforts of Government to develop more fully the institutions already founded by it, and which are so much appreciated by the public.

General Classification pursued in considering system.

In considering a system comprehensive enough in its general features to embrace the extensive ramifications of Industry, we have thought it best to adopt the classification of the Exhibition so far as regards its great divisions. This classification was found convenient in practice, and it is therefore to be presumed that it must have been founded on sound philosophic principles. The four divisions comprehended (1) the *Raw Materials* used for production; (2) the *Machinery* employed in rendering them fit for useful purposes; (3) the Products themselves (*Manufactures*) in the state in which they are used; and (4) the *Fine Arts* employed in adorning them. It will be convenient to consider the general subject under these heads.

DIVISION I.—RAW MATERIALS.

Division I. Raw Materials.

When we examine into institutions raised and supported in consequence of a public demand, the elements of much that is useful are found, though from want of combination and united effort, the full amount of good has not yet been obtained from their action. The natural subdivisions of raw materials into the mineral, vegetable, and animal kingdoms, have found expression more or less perfectly in three public institutions, to which we will now proceed to refer.

(a) *The Mineral Kingdom.*

(a) Mineral Kingdom.

This department is represented by the Government Museum of Practical Geology, and its associated School of Mines. This institution has arisen and been developed by various circumstances to which it is only possible briefly to refer. The Geological Survey, formerly under the Ordnance Department, had ample opportunities of collecting specimens illustrative of the industry connected with our raw mineral resources, estimated to produce annually 24,000,000*l.* sterling. In 1835 a small house was devoted by Government to the retention of specimens thus collected. The value of these, imperfect and limited as they were, was recognised by the Public, and numerous contributions from the mining and manufacturing interests soon enlarged the collection to such an extent, that after the Museum and Geological Survey were united in one department (in 1845), the then Office of Woods and Forests erected the large building in Piccadilly in which the museum is now displayed. From the first establishment of the Institution, the Government, by the advice of Sir H. De la Beche, to whose unwearied energy the importance of the establishment must be in a great measure ascribed, contemplated using it for instructional purposes, but it was found impossible to execute this intention until it was located in more commodious premises. In the meantime, however, important memorials were presented from the chief mining districts, praying that the institution should be converted into a Mining College; and the Government, acting upon this request, instituted last year in connexion with it, and by its own officers already attached to it by other duties, a department for conveying instruction, under the name of the "Government School of Mines and of Science applied to the Arts." The museum, thus enlarged in its sphere of usefulness, was opened by His Royal Highness Prince Albert only a few days after the opening of the Exhibition, but so great has been the demand for the industrial instruction which it professes to give, that its accommodation is already insufficient, as we have shown in a previous part of this Report. This Museum and College was attached to the Office of Woods and Forests, when the latter had charge of the Government mines, but in the recent changes in that department the institution has been retained by the Office of Works, with the duties of which it would appear to have little connexion. The obvious tendency of this museum has been of late years to extend in the direction of Mineral manufactures, and its collections represent these in certain cases in a very complete manner. Its natural objects would therefore appear to be more in unison with the objects of the Board of Trade than with those of the department to which it is at this moment attached.*

(b) *The Vegetable Kingdom.*

(b) Vegetable Kingdom.

In addition to the exertions of Bodies like the Horticultural and Botanic Societies (as shown in their gardens and the exhibitions of flowers held by them), the public wants in this direction have begun to find expression at Kew, under the zealous superintendence of Sir W. Hooker. A museum, commenced in 1848, and yet in its infancy, comprehends for the vegetable kingdom collections similar to those embraced in the Museum of Practical Geology for the mineral kingdom. Its tendency, in increasing the collection, has also been in the direction of manufacturing industry, for, in the words of the Director, "it is intended to contain all (save some of the most trifling and familiar) *vegetable* products, whether in the state of raw material, or as prepared by the art and ingenuity of man; all kinds of useful and ornamental woods, dye-stuffs, drugs, gums, resins, medicines, fibres, &c., &c.; whatever, in short, is serviceable in the arts, manufactures, medicine, or domestic economy." The last report of Sir W. Hooker, accompanying the estimates for the year 1852-53, shows the increasing importance of this institution, for he says—

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* His Royal Highness the Prince of Wales, as Duke of Cornwall, has instituted two exhibitions of 30*l.* each, in connexion with the instructional part of this institution.

> "The Museum of Vegetable Products has increased beyond all expectation, and at a most trifling cost to the country; for the advantages it affords in the way of information and instruction are now so obvious, that many contributors who desire to make known various vegetable products and preparations, have sent specimens to this museum, and donations have accumulated, we may say daily, for the last six months. All the available space in the building is now devoted to the museum, and fitted up with glass cases, which are rapidly filling. For many valuable contributions we are indebted to the Great Exhibition. They consist of vegetable products, raw and in various stages of manipulation, and manufactures of vegetable substances from all parts of the world. The exhibitors have manifested great interest in the museum, and have generously aided its collections. The Secretary of State for the Colonies has also placed at our disposal many vegetable products from the distant possessions of the Crown. I have likewise, with the sanction of the Chief Commissioner of Works, purchased an interesting collection (correctly named) of all the woods of Tuscany from the Tuscan Commissioners; this country yields much of the valuable timber for our navy. Messrs. Peter Lawson and Sons, of Edinburgh, have presented to the museum their collection of Scottish agricultural, horticultural, and arboricultural products. This forms in itself an important addition to our stores. The names of contributors stand attached to their respective donations, which need only be inspected to attest the worth and extent of the gifts, and the liberality of the givers. And when the guide-book to the museum is printed, which has been necessarily delayed in consequence of the great recent additions, a yet wider publicity will follow. Such contributions, together with the collections received during this year from Dr. Hooker's Travels in Eastern India and the Himalaya, will more than fill the present structure."

Dr. Hooker has received a temporary appointment from Government, for the purpose of arranging the specimens alluded to in the above extract, and as the museum will be overcrowded, it will be necessary to find much increased accommodation.

(c) *The Animal Kingdom.*

(c) Animal Kingdom.

This branch is less perfectly represented, for the purposes of instruction, than either the Mineral or Vegetable Kingdom. It is true that the Zoological Society in their gardens represent it efficiently as far as regards living animals, but the products so much used in manufactures have not yet found adequate representation in any museum. Many illustrative specimens in this department have been given to the trade collection formed by the Commissioners; and there is little doubt that the Public would soon supply the deficiency, were opportunities offered for the useful display of specimens.

But neither in the Vegetable nor Animal Department do we find those means of instruction to which we alluded under the Mineral Kingdom. There exists no institution combining the natural study of Vegetable and Animal Products with the study of Chemistry, which has of late years so materially advanced our knowledge of vegetable and animal life. An isolated establishment, the "College of Chemistry," instituted in 1845 under the presidency of His Royal Highness Prince Albert (the present professor being Dr. Hofmann), and which has devoted its researches in a great degree to Organic Chemistry, does indeed exist; but its entire absence of connexion with other institutions, and its necessary limitation to a single science which, though an important one, yet constitutes only one branch of knowledge, have prevented it from having that amount of influence on Manufacturing Industry which its projectors anticipated. It is believed that its resources might be more usefully applied if it were put in connexion with those branches of the Organic Kingdom which are so closely allied with the nature of its investigations.

General Remarks on Division I.

We have thus drawn attention to the different institutions which may be generally comprised under the head of Raw Materials (as chiefly dealing with them and with the investigation of the processes used for adapting them to the purposes of Industry), as we see in them a public recognition of the importance of instruction in this direction. We find, however, that they have arisen in the strong convictions of those who profess the special branches of knowledge to which they refer, and that much of their importance to Industry is lost by their total want of connexion even as regards locality, and the impossibility, therefore, of using them in a course of systematic instruction. Although for convenience, separated in classification, they yet intimately depend on each other, and the knowledge derived from all becomes one in its application to industry. Thus in textile printing, an acquaintance with mineral mordants, of animal and vegetable colours, of animal and vegetable fibres, can now only be obtained in establishments widely apart and not working together for one common end. These means of education, which in this country are fragmentary, dissevered, and far from complete, are in other parts of Europe associated into one common system, and produce those striking applications to industry which were presented to us in the recent Exhibition.

Such institutions, embracing instruction in the principles of Science connected with the three kingdoms of nature, might be made available, with suitable additions, for the promotion of Agriculture, and thus aid the advance of an art which has recently made such marked progress.

DIVISION II.—MACHINERY.

Division II. — Machinery.

The Department of Machinery is not at present represented by any special metropolitan institution designed for instruction. Nevertheless, one of those isolated efforts arising from the convictions of persons interested in the special industry has shown a public recognition of the want. For several years the College of Civil Engineers at Putney included instruction in this branch of knowledge. This institution arose at a time when railways sprang into sudden existence, and called for more engineering knowledge than was generally diffused through the country. For some years it was very successful as to the number of pupils, but after a time it became apparent that its scope was too limited, and that there was not sufficient outlet for its students; other circumstances of a pecuniary and private character intervened, and the college was discontinued in 1851. The deduction to be obtained from this is not that the institution did not supply a want in instruction, but rather that special efforts for a limited object may fail, which had they been part of a scheme embracing a larger field of action would probably have been eminently successful. A department of King's College devoted to Civil Engineering, and having workshops attached to it, is now in successful operation, and partly supplies the instruction required in this division. The Institution of Mechanical Engineers in Birmingham arose in a great measure from a feeling amongst those who superintended the mechanical department of railways, that it had become exceedingly desirable to assimilate the arrangements and designs of the various railway companies, whose want of uniformity was daily productive of much inconvenience. It was evident to every one connected with these works that this object could only be obtained by freely discussing the merits of the different systems pursued in different parts of the country in a society established for this and similar purposes. Although the institution has only been recently established, unequivocal benefit has already been derived from it, in consequence of the heads of the locomotive and carriage departments having been brought together so as to interchange their ideas, and to report from time to time the actual results of their daily experience; thus their proceedings become a record of most valuable facts for the use of the practical mechanic.

The admirable effects produced by well-arranged collections of Models of Machinery, and especially of new inventions, are shown by the public importance attached to the "Conservatoire des Arts et Métiers" in Paris, and similar institutions in other parts of Europe. The great attention paid by the Public to the department of the Exhibition devoted to Machinery indicated how eagerly such facilities for acquiring knowledge were used. Further evidence of the fact is seen in the desire, already alluded to, that was expressed by inventors in the late discussions on the Patent Laws, to obtain a place where models of recent inventions could be deposited. It is well known that there are numerous valuable models existing in this country which it would require little effort to obtain if suitable accommodation could be provided for their display and useful illustration. If means were offered for exhibiting and testing new machines under scientific superintendence, we have reason, from the experience of the Exhibition, to believe that they would be largely taken advantage of, and it cannot be doubted that such means, used for the purposes of instruction and with the co-operation of our eminent civil engineers and of the scientific societies, would soon give a new impetus to Invention. It has already been shown in a former part of this Report, that a systematic training in the principles of

Machinery is a great desideratum in this country. (See the extract from Professor Willis's Lecture previously quoted.)

DIVISION III.—MANUFACTURES.

Division III. Manufactures.

All the technicalities of manufactures cannot be well taught in an institution devoted to instruction, but the principles on which they depend form an important object of that instruction. These principles are, however, involved, and gradually develop themselves from the study of raw materials, the processes used in their adaptation, and the machinery employed in their conversion to useful purposes. Manufactures, therefore, so far as they form the subject of scientific instruction, naturally grow out of, and indeed form a part of institutions such as those described in the preceding sections. But it would be necessary that the general tendency which such institutions have exhibited, in accordance with a public demand imperfectly expressed, to extend themselves in the direction of manufactures, should be systematized and be made of an importance adequate to the acknowledged wants of industry. The Society of Arts seems originally to have intended to supply this deficiency, for after quoting several instances, Professor Solly, the Vice-Chairman of its Council (and now Secretary to the Society), makes the following remarks in his Lecture "on the Vegetable Substances used in the Arts and Manufactures in relation to Commerce generally" (one of the series delivered in pursuance of His Royal Highness Prince Albert's suggestion):—

"These are, however, but a few out of the many similar facts I might mention; they show plainly, that had the original objects for which the Society was established been strictly adhered to, and had its means enlarged in proportion to its utility, we should now have a most valuable record of the progress of human industry during the last hundred years, in fact a great industrial museum of the whole world, not a mere magazine or storehouse in which natural productions and ingenious contrivances are piled up in endless confusion, where they may remain buried for ages; but a practical, useful, and well-arranged series, denoting past progress, and leading to future improvement; a place of reference, in which useful knowledge of all sorts would be accessible to every one, and at all times available for purposes of instruction."

Trade Collection.

The Society of Arts by its recent special exhibitions, which prepared the way for and led directly to the Great Exhibition of 1851, has been again moving in this direction; and Professor Solly, in the same lecture, suggests the formation of a Trade Museum, in which the manufactures should be fully represented, as well as the materials which give origin to them.*

* "The Great Exhibition has strongly shown the want of such a collection in England, and I feel that it is not foreign to the objects contemplated in these Lectures, if, in conclusion, I should ask my brother members, why should not we, even now, commence the formation of such a collection; why should not the Society of Arts undertake that which would be so great a public benefit?

"In throwing out this suggestion, I would remind you, not only that the Society of Arts possesses greater facilities than any other Society for collecting a great Trade Museum, but

The Trade Museum so liberally presented by various exhibitors to the Commissioners, and the numerous promises of further contributions, added to the collection already possessed by the Society of Arts, and what we have reason to hope might be secured from its active co-operation, would form a nucleus of a very important character for a Museum of Manufactures worthy of this industrial country. Museums similar to that proposed exist in other countries, and are of much use by enabling manufacturers to compare the respective excellences of production. A memorial (see Appendix I) signed by very influential merchants and others interested in the commerce of London, has been presented to the Commissioners, urging the desirableness of a trade collection in which commercial specimens, with all necessary information as to prices, production, &c., might be placed. Such a collection would in all probability be self-supporting, as its commercial and exchange advantages are obvious. In the Lecture which we have just quoted, it is said :—" It may be taken as a pretty well ascertained fact, that only those manufactures are really in a progressive state of which the producer of the raw material and the manufacturing consumer are in more or less direct communication, and where there is a mutual knowledge of the capabilities of the one and the requirements of the other." A trade collection, which in its nature must be fluctuating in illustration, the specimens not being permanent, would be advantageous in connexion with permanent specimens of manufactures, and both might be usefully employed in the instruction of those who are to instil into industry that knowledge of Science which is so important to keep it in advance of the intellectual competition among nations. Such museums, of which the scattered elements already exist abundantly in the Metropolis, can only be of enlarged public utility when combined with instruction, the admirable effects of this combination being already seen in many other parts of Europe.*

Division IV.—FINE ARTS.

Division IV.
Fine Arts.

This division, as compared with the three preceding ones, is already represented extensively in the Metropolis, though still very inadequately, when contrasted with other capitals. It may suffice to cite the National Gallery, the Galleries of Sculpture in the British Museum, the Royal Academy, and the Department of Practical Art (including the Schools of Design). Of these the first two have for their object

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also that the many valuable and interesting specimens already in the drawers and cabinets of our model-room, constitute of themselves alone a collection of the very greatest practical importance.

"With those who say we need an enlarged and comprehensive system of National Education I agree heart and soul; but I would even go further—I say, let us have the means of teaching the schoolmaster as well as the scholar; let us, by collecting sound facts and useful information, obtain those means of instruction in applied science which are at present wholly wanting."

* In Germany, Schools of Commerce have long been established, either separately or in connexion with the Polytechnic Institutions. The subjects usually taught at these schools are—the principles of commercial science, commercial law, commercial mathematics and algebra, a knowledge of raw materials and products, geography, trade, &c., and book-keeping, style, and composition. They are generally attended by young men previous to their entering the counting-house of the merchant.

the illustration of Art viewed in the abstract; the Royal Academy has for its object instruction in the higher branches of Art; and the last named, the special application of Art to industrial purposes.

Painting, National Gallery, &c.

The objects and history of the National Gallery are so well known, that it cannot be necessary to describe them. It is, however, universally allowed to be far from being worthy either of this country, or of the purposes to which it is devoted:—the confined space at its disposal depriving the Public of many advantages which it has a right to expect from the Institution, and also tending to prevent individual contributions and bequests, which, there is every reason to believe, would otherwise be largely made to it.

It is of the greatest importance to collect, while it is possible, good specimens of the various schools, including the earliest masters, so as to enable the spectator to trace the gradual progress in the art of painting generally, as well as the gradual development of the qualities for which particular schools have been distinguished. To render such a series instructive, much would depend on arrangement; but in the present National Gallery, even if the materials existed, an arrangement with a view to schools and the progress of Art is impracticable from want of room. As fresh additions are made, this want of order necessarily increases, so that the collection rather resembles a warehouse of pictures than an illustrative gallery. To the advanced connoisseur and artist this is perhaps of less consequence; but for students and the public generally, it must be regarded as defeating in a great measure the objects of a National Gallery.

The difficulties, arising from want of space, which at the present moment interfere with the complete and satisfactory development of sound instruction in the higher branches of Art, have already been noticed in the instance of the Royal Academy. Such difficulties are not confined to the case of Painting, but are applicable in a still greater degree to the sister Arts; and the impediments referred to cannot but be felt, when it becomes a question of the practical application of the Arts to the Industrial purposes of Manufacture, the special object for which the School of Design was originally established.

School of Design.

This school, from the period of its opening in 1837 to the present time, has had to encounter the difficulties which arise from a deficiency in that early elementary knowledge of Drawing requisite for making satisfactory progress in Ornamental Art. The consequence has been, that this elementary instruction has necessarily formed the chief business of the school and of its branches, and has so far prevented it from producing all the beneficial effects which would have ensued had the means of imparting that instruction existed elsewhere.

Nevertheless, the desire felt on the part of the Public to take advantage of the benefits held out by the school has been so strong, that altogether not less than 20,000 pupils have passed through the Central and Provincial Schools; and the number at present attending them is upwards of 3,000. The sum annually voted by Parliament for their support has gradually increased from 500*l.*, its amount when the school was first established, to the sum of 17,920*l.*, as shown in the estimates for the year 1852-53. (See Appendix F.)

The necessity for reorganizing the system until recently in force, and of making the School of Design of more extended utility has, within the last few months, led to the establishment by the Government of a Department of Practical

Art, under the superintendence of Mr. Cole and Mr. Redgrave, R. A., the former of whom so materially aided the Commissioners in bringing the Exhibition to its successful issue, by his zealous and indefatigable exertions as a member of their Executive Committee, while the latter prepared for them a valuable Report on Design, to accompany the Jury Reports, at the time when he was a member of the "Fine Arts" Jury.

In a letter recently addressed to the President of the Board of Trade by those gentlemen, they have submitted an outline of the principles which they conceive should be adopted in order to promote its satisfactory development. They recommend that with the view of carrying out the great object of Schools Design, viz., "the study of the various processes of Manufacture, and the practice of Design for Individual branches of industry," and "the *practice* of the various branches of Decorative Art," the student should have the means of consulting fine examples of what has already been accomplished in the special department in which he seeks to be proficient. They say, for instance, that

"An educated designer for Ceramic Manufacture should at least have an adequate knowledge of what Japan, Meissen, Sèvres, and even Chelsea, have already done, and should aim to acquire a power of execution as high as that which his predecessors have possessed. He should be instructed also in the principles which guided them to excellence, and taught to avoid the faults which marred the perfection of their labours. In like manner, the properly-educated designer for Printed and Woven fabrics ought to be practically familiar with the early Chintzes of India, as well as with the best specimens of work now produced at Paris, Mulhausen, Crayford, or Accrington.

"Classes of students should be formed for the actual practice and study of the specialties of manufacture, and for acquiring a knowledge of the general principles by which the ornamental design for such manufactures must be regulated."

The letter in question also contains the following passages :—

"The purchases of Indian and other ornamental works from the late Exhibition will be of the greatest value in developing the higher kind of instruction thus indicated, both in London and the country.

"In this (the more advanced) as in the elementary division of the department, it may be expected that the general public will derive considerable benefit. Whilst the student is acquiring skill by practice, both the producer and the consumer will have increased means of judging of the success of the student's efforts; and after a time it may be expected that all classes will become as willing to receive instruction in Art as they are in History, Chemistry, or Geology."

It was also recommended that lectures and demonstrations of the principles of design, exemplified by the articles comprised in the collection possessed by the department, should be given as soon as arrangements could be made for the purpose. As has been already mentioned, a limited amount of space has been *temporarily* obtained at Marlborough House by the gracious favour of Her Majesty. The collection which is now displayed there forms a very valuable nucleus for a larger one, and supplies a want which had seriously impeded the progress of the Schools of Design.

Their past history had proved that the teaching of principles without the means of demonstrating their truth by example, had been only an imperfect instruction, and it had long been felt that a collection of suitable examples was indispensable no less to the teacher than to the pupil.

The Public already possess numerous articles by means of which a proper collection might be formed. In addition to the articles at Marlborough House, the British Museum contains specimens of Etruscan Pottery, carvings by Albert Durer, designs for goldsmiths' work by Holbein, gems, &c., while the Museum of Practical Geology possesses examples of Ceramic and Glass manufactures, at the same time that the collection belonging to the Commissioners itself includes many valuable specimens illustrative of this department.

By a union in one locality of these different means of instruction, with the advantage of not being far from the National Gallery, the public taste would be educated in the most efficient way, and the history of Art, as applied to useful purposes, practically exemplified.

Such a collection, historically arranged, and showing the progress of different manufactures from ancient times to the present day, might either be formed by the Government and exhibited by them, or else made by the Commissioners on a self-supporting plan, upon condition of their making all the materials deposited in it serviceable for lecturing on and copying from in the adjoining School of Practical Art.

Architecture.

Before concluding these observations on the subject of the Fine Arts, it is necessary to notice the important subdivision of *Architecture.* Of all the higher branches of Art, it is the one which may be said to require the most varied degree of instruction, and to be connected with the greatest number of branches of practical Science. An acquaintance with the properties of Raw Materials, a knowledge of Physics, of Chemistry, of Manufactures, are alike indispensable to its correct appreciation; but although this truth has long been acknowledged and acted upon in other countries, it has not been so with us to the extent that might be desired.

The necessity of a more perfect system of Artistic Instruction, as already shown by us in the case of Painting, is equally a necessity in this instance; and we may observe that the collection of casts made by Government on the occasion of the building of the new Houses of Parliament, and ultimately destined, as we have mentioned, for a National Museum of Mediæval Art, would, if only as a nucleus form a most valuable object of study in this department.

Juxta position of Societies already contemplated.

The Commissioners understand that in 1847, the Philosophical Club, a body consisting of eminent Fellows of the Royal Society, instituted inquiries through those of its members who also were members of other learned Societies, as to how far it would be agreeable to the latter to aid in procuring juxta-position of the Societies of the Metropolis. The replies received from the different Societies were on the whole favourable, but from the difficulty of obtaining a site, the further consideration of the subject was postponed. During the past year however, the possibility of obtaining this desirable end has again been brought before the different learned bodies, and in some instances formal resolutions in its favour have been passed by the Councils; while in others, the opinions of the leading members have been found to support the views entertained. It has been urged that if this juxta-position were effected, much of the pecuniary resources, now expended in rent, &c., would be used for the direct promotion of scientific research; and, the Libraries being rendered available for mutual and even general reference, the great inconvenience would be avoided of having to refer to specimens and books in the collections of Societies widely apart from each other, while the concentration of the Societies would direct a greater amount of public attention to their endeavours to promote science and art; and they, again, would be able to exert a greater influence on intellectual progress than they can in their present dissevered state. The Union of Societies was considered as one of locality merely, their juxta-position not being allowed to interfere with their independent existence or self-government. The plan which it is our object in this Report to suggest would at once supply the means of satisfying the desire for juxta-position thus strongly and repeatedly expressed, by securing a locality sufficiently large, and adapted for the purpose.

Purchase of land necessary for the execution of the objects contemplated.

It will be evident from what has been already stated as to the want of space even for the proper development of existing institutions, that to carry out the objects thus contemplated, the purchase of land as a preliminary step becomes absolutely necessary; and this will be still more strongly shown by a reference to the difficulties originally encountered by us with respect to the site of the Exhibition Building. Not only was the appropriation of any portion of any of the Royal Parks to such a purpose strongly objected to, whether such appropriation were to be of a more or less permanent description, or of an absolutely temporary nature, but the whole scheme of the Exhibition was in very great danger of being brought to an untimely end, after having been long and widely spread over the world, owing to objections connected with the question of the site; and the more recent discussion that took place on the subject of the removal of the Building has again shown that the feeling which created those difficulties still continues to exist. It has, therefore, been apparent to us, that the obstacles standing in the way of using any of the parks, or other public property, for the temporary purposes of the Exhibition, would be obstacles of an insuperable character, when it becomes a question of finding a convenient and unobjectionable site for objects of a permanent nature.

Report on site of new National Gallery.

Proceeding now to the question of locality, we would call attention to a Report from a Commission, appointed last year, to "consider the question of a site for a New National Gallery," which Report was laid before Parliament in August, 1851. The Commissioners (Lord Seymour, Lord Colborne, Sir Charles Eastlake, Mr. Ewart, and Sir Richard Westmacott,) there stated their opinion of the advantages for such a purpose of the neighbourhood of Hyde Park and Kensington, not only on account of the dry character of the soil, but also because "those large open spaces afford a present security against the inconveniences to which the National Gallery is exposed, and are the only grounds which remain safe for future years amidst the growth of the metropolis."

They then reported, that, from information which they had received, they believed that "from 15 to 20 acres of land, with a frontage to the park, might yet be obtained at a reasonable price, which would afford a space for the construction of a Gallery on an eligible site;" after which they proceeded to discuss the question of a site in Kensington Gardens, in case the outlay which would be involved by making such a purchase should be deemed inexpedient.

It was for obvious reasons, that this Commission alluded only in the vague manner above shown to the locality in question, as any greater precision would have had the inevitable effect of enhancing the price that would be asked for the land.

Gore House Estate purchased by Commissioners.

It is understood that the late Government were actually in negociation for a piece of ground, for public purposes, of the character referred to. From some cause that negociation was broken off. It appeared to us so important to secure this locality that, through the zealous and disinterested instrumentality of Mr. Kelk, the builder, we have obtained possession of the land for which the Government had been treating.

The estate, which is very nearly opposite the site of the Exhibition Building, is best known by the name of the "Gore House Estate." It contains about 21¼ acres, and is situated at Kensington Gore, about midway between Prince's Gate and Kensington Gate, and faces Hyde Park, possessing a frontage of between 500 and 600 feet. The cost of the estate has been 60,000*l*.

Insufficient in extent.

The above property presents great advantages of position, and will be found extremely valuable in serving, as far as its limited extent permits, as a locality on which to develop any scheme of public utility, the execution of which involves, as a necessary condition, the acquisition of a site. But it appeared obvious to us that a space of little more than 20 acres would be quite insufficient to admit of the full and satisfactory development of a plan so comprehensive as the one suggested by us, and which is intended to meet, not only existing wants, but such as in the progress of time the advance of knowledge in Science and Art may render apparent. For this object, a much larger extent of ground would be required.

Evils of want of foresight in providing for public wants.

It is unnecessary for us to point out the evils which have unfortunately so frequently arisen in practice in this country from a want of foresight in this respect, attention having generally been confined to the absolute and pressing requirements of the moment, without providing for their inevitable extension. It has been usual, in purchasing property for public purposes, to obtain only the exact space needed at the time of the purchase, and even to re-sell any amount of ground that might remain over and above that called for by the exigencies of the case. The invariable consequence of this mode of proceeding is, that adjacent land, which might have been procured on reasonable terms in the first instance, immediately rises in value, passes into the hands of other persons who invest large sums in erecting houses and buildings upon it, and when at length it becomes absolutely necessary to obtain it, in order to satisfy the public wants—which will not remain stationary, and cannot be disregarded—the most exorbitant sums have to be paid for it.

Nor is it necessary to point to the lamentable fact that, even when this has been done, most of our public buildings remain subject to the disadvantages of being placed in such a situation, from the crowding of surrounding houses, that they are without light or air, have no convenient access, and cannot be seen to any advantage, and that the extensions which may have been effected, are ill-arranged for their purpose, inconvenient, and inharmonious in their effect.

Examples of cost of obtaining space.
British Museum.

A striking instance of the cost of obtaining space for the extension of great national objects, is to be found in the case of the British Museum, where a sum exceeding, on the average, 40,000*l.*, has been annually voted by Parliament for a long succession of years, to defray the cost of the new buildings required there. Notwithstanding this large outlay, it has been shown in an earlier part of this Report, that the space which has thus been provided is entirely insufficient even for the present necessities of the Museum, and it appears from a Return laid before Parliament last session, that a sum of not less than 67,500*l.*, would be required to purchase a few neighbouring houses which it would be necessary to demolish, in order to obtain the additional space required.*

Metropolitan Improvements.

A similar history attaches to the various metropolitan improvements, which are rarely undertaken until the great lines of communication (which ought to have been originally provided for, but the necessity for which becomes only fully apparent with the growth of the town,) have been already covered with houses and buildings. The expense at which these improvements have then to be carried out is of course enormous.

As an instance of the cost of making improvements in the Metropolis, it may be mentioned that the outlay on some of the more important improvements undertaken of late years have been as follows:—

Line of Street.	Area of Property purchased.	Total Cost.	Average Cost per Acre.
	Square feet.	£.	£.
Oxford Street to Holborn - - - -	220,151	290,000	57,380
Bow Street to Charlotte Street - -	61,653	96,000	67,827
Coventry Street to Long Acre - -	65,410	180,000	119,871

It is also within our cognizance that no less than 25,000*l.* per acre was paid for 10 acres of the site occupied by one of the chief railway termini in London.

Provincial Towns.

In such towns as Liverpool, Manchester, Birmingham, and Leeds, the price of sites for public buildings, streets, railway stations, &c., is frequently most excessive. In Manchester, from 10*l.* to 12*l.* per square yard (being at the rate of from 50,000*l.* to 60,000*l.* per acre), is a common price for the land on which the warehouse property is built, and as much as 40*l.* per square yard (or at the rate of nearly 200,000*l.* per acre), has been paid for land in the centre of the town. In Birmingham, again, some surplus land in the centre of the town belonging to the London and North Western Railway Company, has, within the last few weeks, been sold at the average price of 11*l.* 16*s.* per yard, or at the rate of more than 57,000*l.* per acre; while a portion fetched 13*l.* 10*s.* per yard, or upwards of 65,000*l.* per acre.

In the same manner, land at Liverpool, in the immediate neighbourhood of the Town Hall and Exchange buildings, sells for 30*l.* per square yard, or at the rate of nearly 150,000*l.* per acre; and in extreme cases, 40*l.* per square yard, or nearly 200,000*l.* per acre, has been given. At a distance of 300 yards from the above, and off the great thoroughfares, land has sold for 20*l.* per square yard, or nearly 100,000*l.* per acre; while, even at the distance of more than a mile from that

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See Parliamentary Return, headed "British Museum," No. 557, of 1852.

central point, and in a direction quite away from business, land has been bought for building purposes, in quantities exceeding an acre, at from 35*s.* to 38*s.* per square yard, or at the rate of from 8,470*l.* to 9,196*l.* per acre.

Illustrations of the difficulty of correctly estimating prospective wants.

In contrast to the above instances, and in illustration of the difficulty of correctly estimating prospective wants, we may be allowed to mention a case which has come within our knowledge, in which one of the principal Railway Companies possessing termini in London required a certain area for the formation of its metropolitan station. In order to insure the possession of sufficient space, the Directors applied to Parliament for permission to purchase compulsorily upwards of 50 acres for that purpose. The application was strenuously opposed, on the ground that such an amount of space was more than double what could be possibly required. The Directors, however, succeeded in obtaining the powers sought for by them, and the result has shown the prudence of their having done so, as the whole of that large space has proved to be requisite, and the Company has escaped the necessity of purchasing the additional land at a later period, when its cost must obviously have been expected to have increased.

We understand that in the case of another great Railway Company, the metropolitan terminus of which it has recently been found necessary to extend, the price that has now to be paid for the requisite land is more than four times the price for which it might have been obtained ten years ago, although it remains in precisely the same state as it did then.

Necessity of Commissioners securing ample space.

Profiting, therefore, by the experience derived from previous cases, we were anxious not to put forward our scheme before we had secured such an amount of land as might be considered really to meet probable emergencies. A space of 150 acres, if it could have been obtained by us, would, in our opinion, have been by no means an excessive provision, while less than half that amount would certainly be insufficient.

The unoccupied ground contiguous to our first purchase, seemed to afford us the facility of obtaining the utmost amount of space that could be required for the full development of the scheme proposed by us, and was indeed the principal inducement to us in concluding that purchase.

Means insufficient.

But while it was obvious to us on the one hand, that our own means were totally insufficient to provide the extent of land required for the objects we have in view, it appeared, on the other, that those objects comprehended an extension of National Institutions which did not come properly within our competence, but which the Government had been repeatedly urged in Parliament to supply, and was known to us to be now actually considering the best means of providing. Under these circumstances, it appeared to us that in no way could those objects and the interests of the public be so well or so economically secured, as by a harmony of action between the Government and ourselves.

Resolution adopted, conditional on Government co-operation.

We therefore passed a resolution authorizing the outlay of a sum not exceeding 150,000*l.* of the surplus in the purchase of land (including our first purchase), upon the condition that Her Majesty's Government would engage to recommend to Parliament the contribution of a sum of like amount towards the purchases contemplated, either for account of the Royal Commission or for the joint account of the Commission and the Government, or for division between them, as might afterwards be determined.

This assurance having being obtained by us, we felt that we were placed in a position which would justify us in proceeding, without an injurious loss of time, to make the further purchases; being at the same time fully aware that we should be doing so at our own risk, but equally convinced that under the peculiar circumstances of the case, it was our duty to the country not to shrink from incurring that responsibility.

Purchase of Baron Villars' estate.

Accordingly, we entered into negociations with the trustees of the Baron de Villars, for the purchase of an estate belonging to him, of the extent of 48 acres, and adjoining the Gore House Estate already purchased by us. The result of those negociations, which were conducted gratuitously on our behalf by Mr. Thomas Cubitt (whose long and practical experience in such matters has been of the greatest service to us), has been, that we have secured the possession of this estate for the sum of 153,500*l.* Of this amount, the sum of 15,000*l.* has been already paid by us as a deposit.

Negociations with several other neighbouring proprietors have up to the present time led to no result.

The total space that has thus been already secured by us contains nearly 70 acres; and it is very important to observe, that the present is the last opportunity of finding an unoccupied space in a desirable situation, within the limits of the Metropolis, which is so rapidly extending in a westerly direction.

Although we are of opinion that, in making purchases to the extent to which we have above referred, we have taken upon ourselves as great an amount of responsibility as we had felt justified in incurring, yet we cannot refrain from suggesting for the consideration of Her Majesty's Government whether they would not be exercising a wise economy in recommending Parliament to obtain possession of the whole of the unoccupied ground adjoining that purchased by us, by which means a total extent of about 150 acres would be secured for the development of great national objects, such as those pointed out in this Report, the opportunity being one which, if now lost, cannot possibly recur.

Position of locality is favourable and convenient.

The distance of this locality from the centre of the Metropolis has not appeared to us to be in any way an objection to the site we have obtained. The success of the Exhibition, on a spot almost exactly opposite it, to which upwards of six million visits were paid, has clearly shown that that part of London is not too remote for visitors; while it has been ascertained, by an analysis of their addresses, that the great proportion of the members of the principal scientific bodies live considerably to the west of Charing Cross.

Apportionment of ground.

The question of the apportionment of the ground among the different institutions to be erected upon it, or of its division between the Government and the Royal Commission, as already spoken of, must obviously be left for future consideration and arrangement. It appears to us, however, that it would be desirable that the new National Gallery, if placed in this locality, should occupy the advantageous and more elevated site fronting Hyde Park, on the Gore House estate, while an institution like the Commercial Museum, or Museum of Manufactures, already suggested by us, might be established on the corresponding site fronting the Brompton-road, at the further end of the property; the central portion containing a building in which the different societies might procure that juxtaposition, the means of effecting which, as we have before mentioned, they have been for several years considering; while the two sides might be devoted to the departments of Practical Art and of Practical Science.

Immediate enjoyment of ground may be secured to public.

Although a considerable period will naturally be required for the development of a plan of the comprehensive nature of that which we have now submitted, intended as it is to furnish the means of providing for public wants even at distant times, yet an immediate enjoyment of the grounds may be secured to the public, affording a useful and agreeable addition to that offered by Hyde Park and Kensington Gardens.

Conclusion.

In the preceding part of the Report we have shown, by pointing to the many Institutions so liberally supported both by the Public and the State, the injustice of the reproach to this country, that it makes no efforts for the promotion of Science and Art; but we have confessed likewise, that though a larger amount of money is spent for those objects in this Metropolis than, perhaps, in any country, yet this is the only country which has neither supplied (in any practical or systematic shape) scientific nor artistic instruction to its industrial population; nor provided, for men of Science and Art, a centre of action, and of exchange of the results of their labours, affording at the same time the means of establishing the connexion between them and the public which would secure permanent relations of reciprocal influence.

Yet this country, as the centre of the commerce and industry of the world, would seem to require, more than any other, to have these wants supplied; and the Great Exhibition of 1851 has, in its results, convinced us that, unless they be speedily satisfied, this country will run serious risk of losing that position which is now its strength and pride.

We believe that we have shown that want of space and want of system have hitherto been the main impediments to their being so satisfied. We have endeavoured to remove these, by procuring a spacious and unencumbered piece of ground, situated in a most favourable locality, and near the very spot on which the Crystal Palace displayed the products of the industry of all the nations of the earth,—and by suggesting a system based upon the scientific subdivision and arrangement of that vast collection, which left none of the industrial products or wants of man unrepresented.

We propose to trust, for the carrying out of our plan, to the same principles which alone have rendered the execution of so large an undertaking as the Exhibition of 1851 possible within so limited a time; viz., the finding room and system, and leaving it to the voluntary efforts of individuals, corporations, and authorities, to carry out the promotion of the different interests with which they are themselves connected, on which they are dependent, and of which they are therefore the best guardians and judges.

We intend to pursue these objects by the same means, namely, by affording instruction and recreation to the greatest number of human beings, and by acting on the conviction that all sciences and all arts have only one end—the promotion of the happiness of mankind, and that they cannot perfectly obtain that end without combination and unity.

We propose that in the advantages which the institution thus shadowed out may offer, the natives of foreign countries shall be received on a footing of equality with the inhabitants of our own land, and of Her Majesty's colonial possessions, and we anticipate the greatest benefit from the permanent interchange of the thoughts and acquirements of the different nations.

We refrain, for obvious reasons, from entering at present into any details as to how the scheme connected with that part of the institution devoted to instruction may be carried into effect; but we believe that we are able to point out and establish a system by which the Metropolitan Institution will be rendered only the centre of a system of local institutions, aided by local exertion and association, thus securing to our manufacturing population sound industrial knowledge; while, by confining our attention to technical instruction, and not extending it to general education in science and art, we shall be adding to, without interfering with, the means of instruction already existing in schools and colleges. As a preliminary knowledge of the principles of science and of art would be required by the students entering the institution proposed by us, the effect would be to give an impetus to general education, which could not fail to be of material advantage to those bodies.

We are aware that the success of this undertaking must, under Divine Providence, entirely depend upon the support which it may receive from the co-operation of the public, the assistance of Parliament, and the sanction of the Crown.

We believe that we have correctly appreciated the feelings and wants of the people of this country, and the many proofs of interest and favour shown by our Sovereign towards the object of our labours, induce us to hope that, should we be correct in this belief, we may continue to enjoy the countenance of Her Majesty.

Given under our Corporate Seal, at the Palace of Westminster, this Eleventh day of November, 1852.

L. S.

EDGAR A. BOWRING,
Secretary.

ALBERT.
BUCCLEUCH.
DERBY.
ROSSE.
GRANVILLE.
EGERTON ELLESMERE.
OVERSTONE.
J. RUSSELL.
H. LABOUCHERE.
W. E. GLADSTONE.
A. Y. SPEARMAN.
J. W. HOGG.
R. WESTMACOTT.
CHARLES LYELL.
C. L. EASTLAKE.

W. CUBITT.
CHARLES BARRY.
THOMAS BARING.
THOMAS BAZLEY
RICHARD COBDEN.
WALTER COULSON.
C. WENTWORTH DILKE.
T. F. GIBSON.
JOHN GOTT.
W. HOPKINS.
PHILIP PUSEY.
J. M. RENDEL.
JOHN SHEPHERD.
ROBERT STEPHENSON.
WILLIAM THOMPSON.

APPENDIX.

APPENDIX A.

Statement showing the Probable Amount which will remain at the disposal of the Commissioners after completing all the Services immediately connected with the Exhibition.

	£.	s.	d.	£.	s.	d.
Balance already reported, 29th February, 1852				213,305	15	8
Receipts—						
From Sale of Materials, &c.	1,268	10	9			
Interest on Exchequer Bills	4,734	8	5			
Arrears of Subscriptions	497	9	8			
Miscellaneous	31	13	9			
				6,532	2	7
				219,837	18	3
Current Expenditure from 1st March to 31st October inclusive, *viz.*—						
Salaries, including 1,353*l.* 14*s.* 4*d.* for services rendered during the Exhibition, but unpaid at date of First Report	2,598	0	4			
Extra clerks	404	6	6			
Rent of office, rates, taxes, &c.	413	9	4			
Stationery	143	17	5			
Printing and lithographing	506	19	0			
Postage and carriage of parcels	113	8	11			
Fittings, &c., to Building not paid at date of First Report	196	7	1			
Accidents and repairs ditto ditto	60	9	7			
Fire arrangements ditto ditto	31	8	9			
Supply of gas ditto ditto	26	3	8			
Implements and tools ditto ditto	92	18	10			
Payments on account of Money Awards by Juries	10	0	0			
Ditto ditto Medals	4,656	15	0			
Ditto ditto Medal-cases	583	1	10			
Ditto ditto Certificates	514	16	7			
Ditto ditto printing and preparation of Jurors' Reports	9,267	12	0			
Ditto ditto Illustrated Copies for presentation	1,201	7	10			
Ditto ditto binding Exhibitors' Trade Circulars	165	6	3			
Ditto ditto Trade collection	356	8	1			
Payments on account of services under Messrs. Munday's contract	932	18	5			
Payment to Messrs. Spicer and Clowes, on account of losses	1,600	0	0			
Payment on account of " Mechanics' Home	1,000	0	0			
Law expenses	63	16	9			
Contingencies	260	3	1			
	25,199	15	3			
Probable future expenses in connexion with the above services	21,340	0	0			
				46,539	15	3
Estimated amount of Surplus				£173,298	3	0

November 1, 1852.

Henry C. Owen,
Captain R. E., Financial Officer.

APPENDIX B.

ABSTRACT of SUGGESTIONS and APPLICATIONS received by the COMMISSIONERS on the subject of the disposal of the SURPLUS FUNDS of the EXHIBITION of 1851.

I.—*Suggesting the Application of the Surplus to Mechanics' Institutions and Schools of Design, &c.*

NAME.	DESCRIPTION.
Ayr Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Bilston Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Bolton Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Carlisle Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Carmarthen Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Chichester Mechanics' Institution	Literary Societies and Mechanics' Institutions.
Cockermouth Mechanics' Institution	Mechanics' Institutes, Museums, Public Reading Rooms, and Libraries.
Glasgow Mechanics' Institution	Metropolitan and Provincial Scientific Institutions.
Glasgow Anderson's University	Metropolitan and Provincial Scientific Institutions.
Hexham Mechanics' Literary and Scientific Institution.	Mechanics' Institutes and Schools of Design.
Holmfirth Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Keighley Mechanics' Institution	Mechanics' Institutes and Schools of Design.
Leeds Mechanics' Institution	Mechanics' Institutions.
London Mechanics' Institution	Literary and Mechanics' Institutions.
Manchester School of Design	Schools of Design.
Newark Mechanics' Institution	Mechanics' Institutes and Schools of Design.
Newcastle-on-Tyne Mechanics' Institution.	Mechanics Institutions and Schools of Design.
Newcastle-on-Tyne School of Design	Schools of Design.
Newcastle-on-Tyne and Gateshead, Local Committee.	Scientific Institutions in Provincial Towns.
Paisley Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Selby Mechanics' Institution	Mechanics' Institutions.
Sheffield School of Design	Schools of Design.
Stourbridge Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Warrington Mechanics' Institution	Mechanics' Institutions and Schools of Design.
Westminster Literary, Scientific, and Mechanics' Institution.	Scientific Institutions.
Wilsden Mechanics' Institution	Mechanics' Institutes and Schools of Design.
Workington Mechanics' Institution	Mechanics' Institutes and Schools of Design.

II.—*Suggesting the Establishment of a Central College of Arts and Manufactures in connection with Provincial Schools, &c.*

Birmingham, Inhabitants of	Central College of Arts and Manufactures in connection with Provincial Schools.
Bristol, Inhabitants of	Central College of Arts and Manufactures in connection with Provincial Schools.
Halifax, Inhabitants of	National College of Arts and Industry in connection with Provincial Schools.
Hull, Inhabitants of (two Memorials)	Central College of Arts and Manufactures in connection with Provincial Schools.
Lloyd, Lieut.-Colonel (Special Commissioner).	College of Arts and Manufactures.
Oldham, Inhabitants of	Central College of Arts and Manufactures in connection with Provincial Schools.
Sheffield, Inhabitants of	Central College of Arts and Manufactures in connection with Provincial Schools.
Staffordshire Potteries, Committee	Central College of Arts and Manufactures in connection with Provincial Schools.

III.—*Applying for a Return of Subscriptions to Local Committees, for the purpose of being appropriated to Local Institutions.*

Name.	Description.
Belfast, Local Committee	Return of subscriptions, amounting to 300*l.*, in order that they may be applied in aid of local projects designed to extend the knowledge of decorative art, &c.
Blackburn, Local Committee	Return of subscriptions, amounting to 710*l.*, to be appropriated to the establishment of a Public Library and Museum.
Bradford, Local Committee	Return of the amount subscribed, 1,100*l.*; together with a grant of from 2,000*l.* to 3,000*l.* for a School of Design.
Carlisle, Local Committee	Return of the amount subscribed, 200*l.*
Wakefield, Local Committee	Return of subscriptions to the various Local Committees.
Warrington, Local Committee	Subscriptions to be applied to local Institutions by the Commissioners. 150*l.* subscribed by Warrington to be applied to the Building Fund of Warrington Museum and Free Library.

IV.—*Miscellaneous Suggestions and Applications.*

Allen, Mr. C. B., London	Establishment of a School of Art for Artist Workmen.
Archæological Institute of Great Britain and Ireland, London.	Formation of a Museum of Casts, &c.
Bakewell, Mr. F. C., Hampstead	The fostering and trial of inventions.
Bannister, Mr. S., St. John's Wood	Formation of a Museum of Aboriginal Products.
Beaufort, M. de, London	Rewards for Inventions.
Belfast, School of Design	Grant of money for a Statue Gallery in connection with that School.
Berger, Mr. J. C., Islington	Winter Garden.
Birkett, Mr. R., Norwich	An "Albert Park," near London.
Bolton, Local Committee	Statue of H.R.H. Prince Albert. Building to receive all models, drawings, manuscripts, &c., relating to the Exhibition. Site of "Crystal Palace" to be marked.
Bolton, Local Committee	Grant of money for a permanent Free Library and Museum.
Booth, Rev. J., London	Industrial Education of the Middle Classes.
Buckland, Lieut., London	Free Hospital for all Nations.
Chapman, Mr. J., Paddington	Depository of machines, models, drawings, books, &c.
Classon, Mr. J., Dublin	Grant of money for a College of Industry in Dublin.
Clercq, M. de, Haarlem	Institution of Industry.
Clonmel Mechanics Institue	Grant to the Institution.
Dublin Society, Royal	Grant of 5,000*l.* for a Building for the Exhibition of Manufactures.
Eddison, Mr. E., Leeds	Division of the Surplus amongst the various Towns in proportion to the amount subscribed.
Ellison, Rev. H., Bakewell	Foundation of Scholarships in connection with Industrial Schools.
Greenhalgh, Mr. J., Mansfield	Public Libraries, Musical Societies, and Recreation Grounds.
Halkett, Mr. A. P., London	Conversion of the Exhibition Building into a Winter Garden and Residences for Invalids.
Hauchett, Mr. J. M., Cheltenham	Conversion of the Exhibition Building into a Public Reading Room.
Hunter, Mr. Alex., Madras	Grant of Money in aid of the Madras School of Industrial Arts.
Jopling, Mr. J., St. John's Wood	Gallery of Geometrical Models, &c.
Kilkenny Literary and Scientific Institution.	Grant to the Institution.
Lewes Mechanics' Institution	The delivery of Lectures at Mechanics' Institutions.
London, Merchants, &c., of	Museum of Raw Produce in the City of London.
Macdonald, Dr., Invernesshire	Alleviation of Irish and Highland destitution.

IV.—*Miscellaneous Suggestions and Applications*—continued.

NAME.	DESCRIPTION.
Mann, Mr. J. H., Kentish Town -	Hall of Sculpture. Site of Exhibition Building to be marked.
Newton, Mr. C. T., British Museum	Museum of Casts of the Sculpture of all Nations.
Nottingham, Inhabitants of - -	College for Artizans of this and other countries, and a Museum.
O'Conor, Mr. R., Dublin - - -	Purchase of an estate in Ireland for H.R.H. Prince Albert.
Paddington, Mr. W., London - -	Conversion of the Exhibition Building into a Library for all Nations.
Patterson, Mr. A. H., Liége - -	National Museum of Industry.
Phillips, Mr. H. W., London - -	Travelling Studentships for skilled Artizans.
Pickett, Mr. Vose, London - -	Permanent Edifice for future Exhibitions.
Portsmouth and Portsea Literary and Philosophic Society.	Museum, &c.
Ryde Literary and Mechanics' Institution.	Provincial claims urged.
Scottish Society of Arts - - -	Grant of 10,000*l.* for a Building for the Society, in order to aid the extension of its labours.
Sheffield, the Mayor and Aldermen of.	Museums and Educational Institutions.
Sinclair, Mr. G., Whithorn, N. B. -	Gardens, &c., on the site of the Exhibition Building.
Sleigh, Mr. S. H., London - -	Supplemental Exhibition of Works of Art of all Nations.
Society of Arts, London - - -	Grant of 10,000*l.* towards the erection of a building.
Suburban Artisan Schools, the Committee of, Camden Town.	Grant of Money for the promotion of Artisan Instruction.
Sunderland, Local Committee -	Promotion of Practical Science.
Tebay, Mr. J., London - - -	National Gallery of the Fine Arts. Establishment of Schools of Art.

APPENDIX C.

COPIES of MEMORIALS praying for the Establishment of a CENTRAL INSTITUTION of ARTS and MANUFACTURES.

No. 1. BIRMINGHAM.

To HIS ROYAL HIGHNESS PRINCE ALBERT and others, the ROYAL COMMISSIONERS for the EXHIBITION of the INDUSTRY of all NATIONS for 1851.

WE the undersigned magistrates, merchants, manufacturers, designers, and others, interested in the commercial and manufacturing prosperity of the Borough of Birmingham, beg respectfully to address your Honourable Board.

Your Memorialists have witnessed with the highest gratification and pride the unparalleled success of the Exhibition of 1851, and the beneficial results which it has drawn forth, and which will be felt not only by this nation, but by the whole civilized world.

This vast undertaking, conceived in the first instance by your Royal Highness, interpreted in its true light by the various great manufacturing districts of this kingdom, and carried out so effectively by all nations, has produced a large surplus from its revenues, which, if devoted to some great object, might extend the beneficial effects of the Exhibition of 1851 over centuries to come.

With this object, your Memorialists, as partly representing one of the greatest manufacturing towns of the empire, have felt called on to address your Board.

Amongst the many projects for usefully disposing of the large sum of money alluded to, one, apparently the most favoured, has been to purchase the Great Building for the purpose of creating a Winter Garden.

Your Memorialists feel that whatever might be their individual opinions on the advantages of such a project to the inhabitants of, and visitors to the Metropolis, still they cannot perceive that the solemn pledge given to the original subscribers and to the country, to devote any surplus to the promotion and improvement of arts and manufactures could be fully carried out by such an appropriation, or that such would benefit the nation generally.

Your Memorialists have long felt the necessity of some more extended system of practical and scientific education in England, which should place within the reach of the industrial classes a much higher standard of scientific attainments than they can now ever hope to possess without very ample means.

Your Memorialists are convinced that with greater facilities in elementary scientific education, intimately connected with, and always accompanied by practical illustrations and manipulations, there would be found as much original genius and talent to develop in the people of this country, as in those of the great continental states of Europe; and that such development would greatly facilitate the maintenance and extension of our manufactures and commerce.

The great and rapid strides which locomotion has taken on the Continent, and the constant international communication which is the result, have extended science and mechanical and artistical knowledge widely over those nations; and thus one vast school of arts and sciences exists, with its members in constant communication, from which this country is partly excluded by its geographical position.

Some of your Memorialists, in their late visit to Paris, have witnessed the advantages which the rising generation of manufacturers is there enjoying in their educational establishments; and although not favoured by the possession of such vast resources in raw materials, mineral wealth and fuel as Great Britain has the blessing to enjoy, they have established such colleges as the Conservatory of Arts and Manufactures, and the Central School of Arts and Manufactures, which are especially destined for the instruction of manufacturers and artisans, either entirely free or at a low charge.

These Central Colleges, under the charge of the State, and with most efficient and interesting museums attached, have ramifications extending over other important manufacturing districts of the country.

In such schools are the youth of France brought up, receiving, particularly in the provincial schools attached to the Conservatory, and in the Central School of Arts, the highest standard of scientific instruction in connexion with the arts, manufactures, and design, matured by practical illustrations and experience in manipulation, and a knowledge of the particular trade in which they are eventually to devote their professional talent as designers.

Numerous young men educated at these colleges, of first-rate talent and practical experience, pass examinations of very high standard, and receive diplomas which are a passport for them to many parts of the Continent as managers and directors of most important manufactories and establishments, and enabling them to find lucrative employment even in England.

From these sources have sprung some of the most eminent men of the age, enjoying rank, consideration, and wealth, derived from the systematic education which they receive there.

Your Memorialists admit with pleasure and gratitude that the Government has already made a great step in advancing this object by the establishment of Schools of Design, and the Museum of Practical Geology; but still the first are only partial in their advantages, and the latter only an isolated branch, which exerts but little immediate beneficial influence over the arts and manufactures generally.

Your Memorialists, therefore, deeply convinced that a more general and efficient system of scientific practical education is required, would respectfully suggest to your Honourable Board, that the Exhibition of 1851 has developed more fully the necessity for such means of instruction, and has also provided ample means for accomplishing an object so closely allied to the original intention respecting the disposal of any surplus receipts from the Exhibition.

For such reasons your Memorialists would solicit that a great Central College of Arts and Manufactures should be established in London, and endowed with the whole of such surplus receipts, which will probably exceed 200,000*l.*, and that a Museum of Arts and Manufactures shall be formed at the College, the basis of which might be most advantageously selected from the present Exhibition.

That provincial schools having the same object in view (such as schools of design) should have connexion with the Great Central College, and be carried on under the same system; and in order that the public may be satisfied with the administration of their provincial establishments, and have a voice in the general system of Education, which is of such vital importance to their own commercial prosperity, your Memorialists would suggest that where such provincial schools may be founded in boroughs, the Mayors should be *ex-officio* Members of the General Board of Metropolitan Direction.

Your Memorialists have thus endeavoured to set forth to your Honourable Board the sentiments which have so strongly urged them to act. They are desirous to devote their best energies in furtherance of an object which they feel is for the honour and welfare of their country; and they have the fullest confidence that your Royal Highness and the Royal Commissioners, who have carried out so successfully the vast undertaking which devolved on them, are the persons pre-eminently qualified to undertake an object of such great national importance.

No. 2. BRISTOL.

To HIS ROYAL HIGHNESS PRINCE ALBERT and the other ROYAL COMMISSIONERS for the GREAT EXHIBITION of 1851.

THE MEMORIAL of the undersigned MAGISTRATES, BANKERS, MANUFACTURERS, and others, inhabitants of the CITY OF BRISTOL, Subscribers towards the Funds raised for promoting the GREAT EXHIBITION.

YOUR Memorialists most respectfully approach your Honourable Board with an expression of their warmest congratulations at the unparalleled success which has crowned the exertions of your Royal Highness and your colleagues in establishing and bringing to so gratifying an issue an undertaking which has justly received such universal admiration. These congratulations have reference not only to the past, but to the anticipated benefits which your Memorialists confidently expect will be the result of the Exhibition, not to our own nation alone, but to the whole civilized world.

Your Memorialists have heard with unfeigned pleasure that the funds of the Exhibition will be sufficient, after meeting every demand on them, to realize a very considerable surplus; and your Memorialists, having lent their assistance in causing this surplus, consider they will not be exceeding the bounds of respect due to your Royal Highness and the other Commissioners if they venture an opinion as to its application.

The project of establishing a Winter Park and Garden in London on a self-supporting principle, has attracted a considerable portion of public attention, and deservedly so, as it would preserve to the country the wonderful structure in which the Exhibition is held. Desirable, however, as such an object may be, and adding, as it doubtless would, to the attractions and probably to the health of the metropolis, your Memorialists are yet of opinion that some object of more general utility could be attained, which would be a better application of your funds, be more conducive to national prosperity, and more in accordance with the expressed intentions of the Commissioners to appropriate any surplus "to purposes strictly in connexion with the ends of the Exhibition."

At a moment like the present your Memorialists have no doubt that your Honourable Board are in constant receipt of projects for the application of this surplus from parties of most varied opinions, and suggesting schemes of every possible shade of difference, and your Memorialists are therefore reluctant to do more than express their approbation of a plan which they consider presents prospective advantages of greater magnitude to the whole community than any other that has been brought under their notice, namely, the establishment of a Collegiate Institution in London, resembling in some degree the Central School of Arts and Manufactures at Paris.

It would be superfluous in your Memorialists to point out the advantages resulting to our artizans from having within their power the means of obtaining, at a moderate expense, a sound scientific and practical education in those branches of trade or manufacture to which their lives are to be devoted. These advantages are too obvious and well known to your Honourable Board to require more than a simple allusion to them, and your Memorialists think that no more legitimate mode of applying the surplus at your disposal can exist than by appropriating it to the elevation of the character and intellect of the British workman, to whose skill and ingenuity (however untutored) the Great Exhibition owes so much; by encouraging discovery, stimulating industry, and offering him the same facilities for acquiring knowledge in his profession which are enjoyed by his foreign competitors.

Your Memorialists abstain from any details as to the benefits to be derived from the adoption of such an institution, and content themselves with merely suggesting that if any plan analogous to that above referred to should meet the approval and countenance of your Honourable Board, you will devise such means as will render it as diffusive as possible, and take measures that it shall become an institution not confined to one locality, but by means of provincial schools in connexion with a Metropolitan Central College, pervading and receiving attention and encouragement in the great manufacturing and commercial cities of the empire, so that what is at this moment a just source of national pride, may, in its ultimate results, prove a national blessing.

No. 3. HALIFAX.

TO HER MAJESTY'S ROYAL COMMISSIONERS for promoting the EXHIBITION of WORKS of INDUSTRY of all NATIONS.

THE undersigned Memorialists, Magistrates, Merchants, Manufacturers, and others, interested in the commercial prosperity of the town of Halifax, viewing the approaching close of the Exhibition, humbly approach your Honourable Board, desiring, in the first place, to offer their hearty congratulations to His Royal Highness the Prince Albert, with whom originated the truly noble scheme, as also to your Honourable Board, who, under the Presidency of His Royal Highness, have conducted it to so successful a conclusion, exceeding by far in its steady career the most sanguine expectations which could have been entertained of the vast amount of interest and advantage to be afforded by its accumulated productions, not only of this but of nearly every other country of the globe, where the development of art or progress of science have been at all enjoyed. The universal response acceded to the grand challenge of industry and enterprise is at once a subject of the proudest gratification, and yields the strongest proof of the great social advantages to be expected from the Exhibition, whilst the stimulus it will yield to the nobler exercises of human ingenuity and industry may safely be calculated upon from the thousands who have availed themselves of the opportunity of inspecting its rich treasures of the operative as well as the wealthier classes of every civilised nation of the earth.

Your Memorialists have further witnessed, with much gratification, that, in a financial point of view, the Exhibition has been alike successful, placing your Honourable Board in the agreeable position of having a surplus to appropriate instead of having to draw for the necessary expenses upon the assistance of the State or the further liability of the public. To the appropriation of this surplus your Memorialists would now humbly address themselves.

Your Memorialists, immediately identified with one of the most important branches of the fancy textile productions of this country, have long felt, in common with other manufacturing districts, the great disadvantages under which they labour from the lack of a more accomplished education amongst the operative classes of the United Kingdom in the higher departments of art and science. Your Memorialists therefore humbly submit that a more appropriate dedication of the surplus funds, nor one more directly in harmony with the originally expressed intention of your Honourable Board, could hardly be adopted than that of founding on a national basis a scheme of education calculated to remove the disadvantages already referred to, alike important to the prosperity and welfare of every class of the community. It is abundantly recognised to what extent institutions of this kind have been promoted by our continental neighbours, and were practical evidences of the important benefits resulting from such a course not otherwise supplied, the truly elegant productions of France, Italy, and Germany, which grace their several departments in the Crystal Palace, would amply establish them.

Your Memorialists feel it unnecessary to enter upon the details of such a project, as they will be so much more ably dealt with by your Honourable Board. They would only add that, in their humble judgment, unless a grand Institution were founded, in which facilities were given of combining practice with theory, so that the student might pursue the one in direct association with the other, a scheme of such a character would best answer its purposes if made to embrace a series of local establishments, acting under and in concert with one central Institution, constituting in the whole a National College or University of Arts and Industry, empowered to grant certificates or diplomas to students of proficiency and merit.

Your Memorialists offer their suggestions in full conviction that your Honourable Board will continue to act with the same energy and sound judgment which have hitherto distinguished your proceedings; and that the further exercise of your official authority will continue to be directed to the grand development of human skill and enterprise, commanding (as it hath hitherto done, at the hands of your Memorialists) the confidence and esteem of all classes of the people.

No. 4. HULL.

To HIS ROYAL HIGHNESS PRINCE ALBERT and the other COMMISSIONERS appointed by HER MAJESTY to carry into effect the EXHIBITION of 1851.

WE, the undersigned Merchants, Importers, Manufacturers, and others, interested in the commercial prosperity of Hull, humbly present to your Honourable Board the following Memorial:—

Your Memorialists have observed with satisfaction the entire success of the Great Exhibition, and they look with confidence to the appropriation of the large surplus of money, in the full conviction that your Honourable Board will use it according to the pledge given to us, when subscriptions were demanded, that it would be applied "to purposes strictly in connexion with the ends of the Exhibition." Your Memorialists view the objects of the Exhibition to be the promotion of arts and manufactures and of international good will. They admire, and would gladly see retained as a winter garden, the magnificent edifice which covers the Exhibition; but as this would chiefly benefit London, and as it does not involve as a primary consideration the promotion of arts and manufactures, they do not consider the appropriation of the surplus to this purpose would be a strict fulfilment of the pledge given by your Board to the public.

Your Memorialists would call your attention to the great importance of Hull as a shipping town, and remarkable for the variety of its imports, which, to a great extent, consist of the raw materials used in manufactures. It is useless for them to insist upon their intimate connexion with the manufacturing interest, or point out the direct benefits which arise to them by developments of industrial skill.

Your Memorialists are in a position, from their connexion with the import and export trades, to state, that the increased facilities of transport have of late years produced a greater distribution of fuel and of raw materials over the world; and that the increased facilities thus afforded obviously necessitate an increased amount of knowledge, in its adaptation to manufactures, because the raw material, once from local circumstances confined to one country, now, at a reasonable rate, is made available to all countries.

Your Memorialists are informed that the great continental states of France and Germany are so fully convinced of this circumstance that they have established central colleges and provincial schools of arts and manufactures, which are exercising much influence in the progress of industry. Your Memorialists perceive that unless a system of industrial education is extended to this country, so as to enable our manufacturers to apply increased science and skill to their manufactures, England cannot keep her position in the great industrial competition of all nations; a competition which has for its effect the increase in value of skill and intelligence, as applied to the manufacture of that raw material, which, by the facilities of transport, is becoming decreased in price. Your Memorialists see, therefore, to themselves a great advantage in giving to manufacturers the means of acquiring a scientific knowledge of the principles of their industries, so that they may apply them with the best advantage to their respective wants.

Your Memorialists would therefore impress upon your Honourable Board the necessity of establishing a central College of Arts and Manufactures, in connexion with provincial schools, having the same object in view. They have full reliance that the great practical skill and aptitude of application which is a marking feature of the character of our countrymen, will enable our manufacturers to use the knowledge which they will thus have an opportunity of acquiring for the best purposes of industry.

Your Memorialists would like to see in connexion with the Central Educational Institution means for special international Exhibitions; as, for example, of silks in one part, pottery in another, and so on; and they believe that these might be made a source of profit, which could be used in the extension of the scheme of industrial education.

Your Memorialists leave with confidence the practical development of these views to your Board, in the full conviction that in your hands the surplus might be made to rear a noble educational monument worthy of the Exhibition which called it into existence.

No. 5. Oldham.

We, the undersigned Magistrates, Machinists, Cotton Spinners, Manufacturers, and others interested in the commercial prosperity of the Town of Oldham, humbly present to your Honourable Board the following considerations :—

Your Memorialists regarded with great interest the proposal for the establishment of an "Exhibition of all Nations," which, notwithstanding the many difficulties that threatened to interfere with its accomplishment, has been brought to so successful an issue. They have also beheld, with much satisfaction, the unique and splendid structure enclosed for its reception, which has proved, in all respects, so admirably adapted to its requirements.

Your Memorialists are aware that it has been proposed to retain the building for the purpose of a winter garden at the close of the Exhibition; and while they do not consider that its retention for such an object would either be incompatible with its arrangements, or undesirable as a means of enjoyment and recreation to the inhabitants of the metropolis, they would respectfully submit that any appropriation of the surplus funds, arising from the Exhibition towards its accomplishment, would not be in strict accordance with the pledge given to the public when solicited to subscribe the necessary fund—that, "should any surplus remain, Her Majesty's Commissioners intend to apply the same to purposes strictly in connexion with the ends of the Exhibition, or for the establishment of similar exhibitions for the future."

Your Memorialists have observed, that it is proposed to collect specimens from the respective Exhibitors to be preserved as a record of the skill which has been displayed, and also for the purpose of future references; and although they admit that such a collection would be exceedingly valuable as a museum of arts and manufactures, they are, nevertheless, of opinion, that it could only be permanently useful, in so far as it may be rendered available for the promotion of education in the principles and practice of industrial science.

Your Memorialists regret that there does not exist in this country any national institution devoted to instruction on a similar basis to the Schools of Arts and Manufactures established in France and Belgium, which, by imparting to their students the knowledge of the principles on which all improvements must be founded, have contributed so largely to the development of manufacturing skill.

Your Memorialists would, therefore, solicit your Honourable Board to take into consideration, in the disposal of the surplus fund which may remain in your hands, the immediate advantage which would be likely to accrue to the manufacturers of this country by the establishment of a Central College of Arts and Manufactures in connexion with provincial schools for the same object, which should include the existing Schools of Design. This institution to be empowered to make examinations and grant certificates to the more advanced students, and to promote, by these and similar means, the cultivation of increased knowledge in the application of science to practical pursuits, which could not fail to exercise a beneficial influence on industrial progress.

No. 6. Sheffield.

To Her Majesty's Commissioners for the Exhibition of 1851.

The undersigned Memorialists, Magistrates, Merchants, Manufacturers, Designers, and others interested in the commercial prosperity of the Town of Sheffield, humbly present to your Honourable Board the following considerations :—

Your Memorialists recollect that when the public were solicited for subscriptions to provide funds for the Great Exhibition they made their subscriptions absolute, under the express pledge that should any surplus remain Her Majesty's Commissioners were "to apply the same to purposes strictly in connexion with the ends of the Exhibition or for the establishment of similar exhibitions for the future."

Your Memorialists have viewed with pleasure the gigantic building erected for the Exhibition, and they do not object to the comfort and enjoyment which the inhabitants of London may derive from its retention as a Winter Garden, but your Memorialists could not view the appropriation of the surplus to this object as a strict fulfilment of the pledge to use the surplus for the promotion of the objects of arts and manufactures.

Your Memorialists fully recognise that the improvements in locomotion and in the applications of science are gradually rendering available to all countries the raw materials which formerly were the privilege of a few, and that in consequence, while the value of the raw material is becoming reduced as an element in manufacture, the value of skill and intelligence to its preparation as another element is constantly increasing.

Your Memorialists observe that other countries less favoured with fuel and raw materials than our own have recognised this fact as a principle of State, and have established schools of manufacture, including schools of design, not only at their capitals but also throughout their provincial towns.

Your Memorialists are informed that in France there is a "School of Arts and Manufactures" attended by three hundred students, who afterwards devote themselves to industrial pursuits, and are in great demand as managers by the manufacturers both of France and of Belgium. They are also informed that, in addition to this school, established and supported by manufacturers themselves, there is a Government institution, having provincial schools attached, called the "Conservatory of Arts and Manufactures," which also affords to the manufacturers and designers the education necessary to understand the principles of their respective industries.

Your Memorialists recognise in such institutions a wise intention on the part of foreign governments to develop manufactures by applying increased science, skill, and intelligence to their cultivation. They feel that in the increasing competition of the world it is necessary to join education to practice, and although they do not think that a practical education in industrial science can ever of itself make manufacturers, they are fully convinced that when the scientific principles of manufactures are more thoroughly understood by practical men they will better be able to apply them with advantage in their respective industries, and to promote economy and improvements in manufacturing processes.

Your Memorialists have observed that Government has considered it desirable to establish a Government School of Mines, in connexion with the Museum of Practical Geology, and they perceive in this act a recognition on the part of the State of the want of practical education to a large branch of industry. But your Memorialists in vain look for a college devoted to the industrial pursuits which they themselves follow, or to those important textile manufactures carried on by the neighbouring manufacturing towns.

Your Memorialists acknowledge that in collecting specimens from different Exhibitors, for the purpose, as they suppose, of founding a Museum of Arts and Manufactures, you are proceeding in the direction of education, but they are fully convinced that such collections can only be made efficiently useful when used as a basis of instruction, and that as a mere collection they cease to be of much importance in the advancement of industry.

Your Memorialists therefore present these points for your consideration, in order that you may judge whether arts and manufactures might not be much promoted by the establishment of a Central College of Arts and Manufactures in connexion with provincial schools for the same object. They consider that the Schools of Design might be made the nuclei for this more extended system of education, and that designers themselves would be benefited by being taught the principles of the manufacture for which they are afterwards to design, because by this means they would better understand its wants and the possibilities of manufacturing processes to carry designs into execution.

They consider that if these branch institutions and the Central College were united into one university of arts and manufactures, empowered to make examinations and grant certificates to those who showed sufficient knowledge, an impulse and position would be given to manufacturing science which could not fail to be of benefit to the progress of industry.

Your Memorialists would therefore submit these views to your Honourable Board, in the full conviction that your judgment would best mature the details necessary to carry into effect the most efficient plan for industrial education.

No. 7. STAFFORDSHIRE POTTERIES.

TO HIS ROYAL HIGHNESS PRINCE ALBERT, K. G., &c. &c. &c., and the ROYAL COMMISSIONERS for the EXHIBITION of 1851.

THE MEMORIAL of the Local Commissioners, and Members of the Local Committees of the Staffordshire Potteries, and their Vicinities, recommended by resolutions passed at a Meeting, held at the New Town Hall, Stoke-upon-Trent, on Wednesday, October the 1st, 1851.

J. AYSHFORD WISE, ESQ., *in the Chair*.

YOUR Memorialists have observed with feelings of the highest gratification and pride the beneficial results which have already been developed by the triumphant success of the Great International Exhibition, and which, however largely important in their present actual realization, are still more valuable and comprehensive in expectancy, not only in their promised influence on our own country, but over the whole civilized globe.

As the time for the final close of this vast receptacle of the aggregate skill and industry of the world at large now so rapidly nears its advent, the question, as to the appropriation of the large surplus funds which its success has accumulated, so as best to perpetuate a reminiscence of the good already achieved by its consummation, and also to secure the means by which future advancement may be most reasonably and hopefully expected, now receives, as it demands, general and earnest attention.

It has been considered, and your Memorialists coincide in the opinion, that the application of those funds to the preservation of the Crystal Palace as a winter garden,—without at all reflecting on the general merits of the proposition, and the policy of its adoption on a distinct and separate footing—would have been a misappropriation, and contrary to the express stipulation already made in the official decision, that any surplus should be "applied to purposes strictly in connexion with the ends of the Exhibition." Your Memorialists beg to suggest, that other and more pressing necessities are felt by all who take a prominent interest in the commercial welfare of this country, as demanding instant and prominent consideration.

The general success which has attended the combined display of England's manufacturing resources is far beyond what the most sanguine in her favour could have predicted, a success emphatically and generously admitted by her foreign competitors, and which has aroused, not only a feeling of justifiable pride in the position already maintained, but also a self-reliant determination to adopt such a course of probation as shall, in prospective contests, place her artistic capabilities on an equality with her mechanical powers.

Your Memorialists feel gratified that in their exertions to produce and contribute specimens of the various branches of their staple manufacture, they have been amply rewarded by the consciousness that their present favourable position has been fairly and creditably won, and is fully appreciated by other countries. They are at the same time conscious, that amidst this general success, there have been partial failures, and that in some of the higher classes of artistic labour they are deeply sensible of an inferiority which they are most anxious to remedy :—errors duly felt and candidly acknowledged are already half amended.

Your Memorialists are confidently of opinion, that a more extended and practical system of scientific education is necessary in this country, a system which should offer on readily available terms to the industrial classes of England a much higher standard of productive acquirements than they now possess, and that ample facilities for a sound elementary education, in intimate connexion with, and accompanied by, practical illustrations, alone are wanting to develop in our artists and artizans as large an amount of genius and talent as is evidenced in the best productions of the great Continental emporiums, and also that such a development would greatly tend to the increase of our manufactures and commerce.

The imperative necessity for such prompt and comprehensive measures as shall best serve to realize this desideratum, and the method by which such proficiency has been attained in other cases, was strikingly apparent to those who, during the late Paris fetes, visited the galleries of the Conservatory of Arts and Manufactures. The inspection of the material therein contained strongly impressed on the minds of all the vastly superior advantages, thoroughly matured, and fully organized, which France possesses for the education of her industrial classes, and the contrast which the solicitude of her government in this respect offers to the past supineness which has hitherto beset our own, must have been as marked as it was disheartening. The influence of such an establishment, aided by the still more comprehensive branches of education prosecuted in the Central College of Arts and Manufactures, conclusively demonstrate the means by which a nation in such immediate proximity with our own should still maintain in some branches of art labour, a superiority so decided. In these establishments the youth of France have, on conditions readily available, the advantages of a system of sound theoretical and practical instruction in all branches of art, science, and manufactures, carried on simultaneously with experimental illustrations educed from the materials, models, and machines, which the museums of their schools possess for the purposes of demonstration. Not only is the education thus afforded remarkably cheap, but the acquirement of high artistic and scientific knowledge, based on explanatory manipulations, becomes to the youthful students so fascinating that they will frequently pass at an early age an examination in which they display such high qualifications, that their services are eagerly sought for by almost all the great manufacturing countries of Europe. By these appliances have been raised some of the most eminent men of the age, enjoying rank, consideration, and wealth, resulting from the system of education which they have thus received.

Your Memorialists anxiously desire that by some suitable system of practical and scientific study, the inherent talent and industry of the productive classes of this country may be advantageously developed. They gratefully acknowledge the policy of the step made in this direction by the Government, in the foundation of the Schools of Design, and the Museum of Practical Geology; but the first are only partial in their advantages, and the latter but an isolated branch which exerts but little immediate influence on arts and manufactures generally.

Your Memorialists feel fully the value of the arguments set forth in the appeal on this subject from Birmingham to your Honourable Board, and would most earnestly and respectfully urge that due advantage be taken of the present opportunity, one altogether unprecedented, and probably without the chance of recurrence, to turn it to some great and lasting national benefit. They would therefore recommend that a central college of art and manufacture be established in London, and a museum connected with it. That provincial schools should be established, and conducted on similar principles to the Metropolitan Institution, and receive a proportion of its advantages, and that where such provincial schools or colleges may be established, the provincial authorities shall have prominent consideration in their control and management.

Your Memorialists trust that in making special reference to the peculiar claims of the Staffordshire Potteries, they will not be considered as assuming or seeking undue prominence, or in any degree disparaging the requirements of other localities—they would however beg to direct attention to the peculiar capabilities which this branch of manufacture possesses for the ample development of artistic and scientific labour, and that of the highest class—involving in the composition of its primary essentials of bodies, glazes, and colours, the exercise of sound chemical knowledge, in the preparation and subsequent application of the material, presenting a field for the operations of considerable mechanical ingenuity,—and in its more advanced and final progress, affording a fitting and worthy medium for the display of artistic resources in their highest and most diversified powers of illustration, utterly without a parallel in the whole range of commercial industry.

Your Memorialists also recommend the selection by purchase of such objects in the Exhibition, or duplicates of them, as might best serve for models both suggestive and imitative, to the operatives engaged in the staple manufactures of this country, particularly directing attention to those exponents of industrial skill and talent in which our foreign rivals have gained supremacy.

It is a remarkable fact, when the personal wealth and commercial status of English manufactures are considered, to find that the districts in which the most important branches of their operations are carried on, are utterly without any fine examples available for general reference of the active capability and latent resources which the manufactures themselves possess, and of the degree of excellence to which superior skill and intelligence have already raised their productions.—Great successes are occasionally heard and read of, which excite either the marvel or incredulity of those engaged in the branches of labour to which they refer, but the opportunities of seeing, studying, and appreciating such results, and by continued examination, so thoroughly mastering the working of the processes by which their excellence has been achieved, as to be able to apply the lesson, if not with equal, at least in reference to past efforts, with improved skill, are few and far between, while to be effectual and permanent they should be ample and continuous.

It will be deplored if, after the costly and laborious accumulation of the most valuable products of the aggregate skill and industry of the present age, resulting from the combined energies of the whole world, its exhibition should end in the excitement of a *show*, instead of the experience of a *school*—becoming a transient gratification instead of a permanent advantage—and unless some further steps be taken to render that a *feeling* which is now but an *impulse*, the ultimate benefits so trustingly looked for will, it is to be feared, be sadly curtailed.

Your Memorialists have thus endeavoured to set forth their wishes. How their views and the attendant advantages which they are sanguine to believe would result from their adoption, may most conclusively and successfully be developed, they respectfully leave to the better judgment and experience of your Royal Highness and the Royal Commissioners, who have already, so far, satisfactorily accomplished the task for which Her Majesty was pleased to appoint them.

APPENDIX D.

List of Institutions in Union with the Society of Arts, November 3, 1852.

Aberdeen	Mechanics' Institution.
Aberystwith	Literary, Scientific, and Mechanics' Institution
Accrington	Mechanics' Institution.
Annan	Mechanics' Institute.
Ashford	Mechanics' Institute.

Bacup	Mechanics' Institution.
Bakewell and High Peak	Institute.
Barking	Mutual Improvement Society.
Barnet	Institute.
Barnsley	Mechanics' Institute and Literary Society.
Barnstaple	Literary and Scientific Institution.
Basingstoke	Mechanics' Institute.
Bath	Commercial and Literary Institution.
Battle	Mechanics' Institution.
Beccles	Public Library and Scientific Institution.
Bedford	Literary and Scientific Institution.
Belfast	Working Classes Association.
Bexley Heath	Society for the Promotion of Useful Knowledge.
Bilston	Institute.
Bishops Stortford	Literary Society.
Blandford	Institution.
Boston	Athenæum.
Braintree and Bocking	Literary and Mechanics' Institution.
Brechin	Mechanics' Institute.
Brentford	Literary and Scientific Institution.
Bridgewater	Literary and Scientific Institution.
Brighton	Athenæum and Young Men's Literary Union
Brighton	Mechanics' Institute.
Bristol	Athenæum.
Bromley	Literary Institute.
Bromsgrove	Literary and Scientific Institution.
Burnley	Mechanics' Institution.
Bury St. Edmunds	Mechanics', Literary, and Scientific Institution.

Calne	Literary Institution.
Cambridge	Philosophical Institution.
Cambridge and Cambridgeshire	Mechanics' Institute.
Cardiff	Athenæum.
Carlisle	Literary, Scientific, and Mechanical Institution
Carmarthen	Literary and Scientific Institution.
Chatham, Rochester, Strood, and Brompton.	Mechanics' Institute.
Cheadle, Staffordshire	Mechanics' Institution and News Room.
Cheltenham	Literary and Philosophical Institution.
Chepstow	Literary Institution.
Chester	Mechanics' Institution.
Chesterfield and Brampton	Mechanics' Institute.
Chichester	Literary Society and Mechanics' Institution.
Clitheroe	Mechanics' Institute.
Corfe Castle	Mutual Improvement Society.
Cork	Royal Institution.
Crewkerne	Literary and Scientific Institution.
Cupar Angus	Mutual Improvement Society.

Darlington	Mechanics' Institution.
Dartford	Literary Institution.
Dawlish	Literary and General Knowledge Society.
Denton and Haughton	Mechanics' and Literary Institute.
Derby	Mechanics' Institution.

Devizes	Literary and Scientific Institution.
Devonport	Mechanics' Institute.
Dover	Museum and Philosophical Institution.
Downpatrick	Mechanics' Institute.
Dumfries and Maxweltown	Mechanics' Institution.
Dundalk	Mechanics' Institute.
Dunmow, Essex	Literary and Scientific Institution.
Durham	Mechanics' Institute.
Eastbourne	Literary Institute.
Ely	Mechanics' Institution.
Exeter	Literary Society.
Falkirk	School of Arts.
Falmouth	Mechanics' Institute.
Feversham	Literary and Scientific Institution.
Folkstone	Harveian Institution.
Fordingbridge	Literary, Scientific, and Mechanics' Institute.
Gainsborough	Literary, Scientific, and Mechanics' Institution.
Gateshead	Mechanics' Institute.
Glasgow	Athenæum.
Glasgow	Mechanics' Institution.
Gloucester	Literary and Scientific Society.
Grantham	Philosophical Institution.
Grantham	Public Literary Institution.
Gravesend and Milton	Mechanics' Institute.
Greenock	Mechanics' Institution.
Greenwich	Useful Knowledge Society.
Guernsey	Mechanics' Institution and Literary Society.
Guildford	Institute.
Hailsham	Mutual Improvement Society.
Halifax	Mechanics', Institution and Mutual Improvement Society.
Halstead	Mechanics' Literary, and Scientific Institution.
Hastings	Mechanics' Institution.
Hereford	Philosophical and Antiquarian Society.
High Green, near Sheffield	Mechanics' Institution.
Highgate	Literary and Scientific Institution.
Horncastle	Mechanics' Institution.
Horsham	Literary and Scientific Institution.
Huntingdon	Literary and Scientific Institution.
Hythe	Reading Society.
Ipswich	Mechanics' Institute.
Lancaster	Mechanics' Institute.
Leamington	Royal Leamington Literary and Scientific Institution.
Leeds	Mechanics' Institution and Literary Society.
Leeds	Philosophical and Literary Society.
Leeds	Yorkshire Union of Mechanics' Institutes.
Leek	Mechanics' Institution.
Leicester	Mechanics' Institution.
Leiston, near Saxmundham	Mechanics' Institute.
Leven, Vale of	Mechanics' Institution.
Levern and Barrhead	Mechanics' Institution.
Lewes	Mechanics' Institution.
Lincoln	Lincoln and Lincolnshire Mechanics' Institute.
Liskeard	Institution.
Liverpool	Mechanics' Institution.
Liverpool	Bootle Educational Society.
London, Bank of England	The Bank of England Library and Literary Association
„ Camberwell	Camberwell Athenæum.
„ Leipsic Road, Camberwell.	Camberwell Institute for the Industrial Classes.
„ Aldersgate Street	City of London Literary and Scientific Institution.
„ Hackney	Hackney Literary and Scientific Institution.
„ Sussex Hall, Leadenhall Street.	Jews' and General Literary and Scientific Institution

London, Nine Elms	London & South-Western Literary and Scientific Institution.
„ Cripplegate	London Domestic Mission Society.
„ Southampton Buildings	London Mechanics' Institution.
„ Edwards Street, Portman Square.	Marylebone Literary and Scientific Institution.
„ 65 Carlisle Street, Edgware Road.	Marylebone and Paddington Literary Institution.
„ 74 Grosvenor Street	St. George's, Hanover Square, Lending Library and Reading Room.
„ South Place, Pimlico	St. Michael's Literary, Scientific, and Mechanics' Institution.
„ Walworth	Walworth Literary and Scientific Institution.
„ Great Smith Street, Westminster.	Westminster Literary, Scientific, and Mechanics' Institution.
Longton	Athenæum and Mechanics' Institution.
Loughborough	Literary and Philosophical Society.
Ludlow	Literary Association and Mechanics' Institute.
Lymington	Literary Institution.
Lynn	Conversazione and Society of Arts.
Macclesfield	Society for the Acquirement of Useful Knowledge.
Maidenhead	Mechanics', Literary, and Scientific Institution.
Malton	Literary Institution.
Manchester	Mechanics' Institution.
Manningtree and Mistley	Mechanics' Institution.
Margate	Literary and Scientific Institution.
Marlborough	Reading and Mutual Improvement Society.
Modbury, near Ermebridge	Institution.
Morpeth	Mechanics' and Scientific Institution.
Newark	Mechanics' Institution.
Newbury	Literary Institution.
Newport, Isle of Wight	Athenæum and Mechanics' Institution.
Newport, Monmouthshire	Athenæum and Mechanics' Institute.
Newport, Salop	Mechanics' Institute and Literary Society.
Northampton	Mechanics' Institute.
Northampton	Religious and Useful Knowledge Society.
Nottingham	Mechanics' Institution.
Oldham	Lyceum.
Oswestry	Young Men's Institute.
Patricroft, near Manchester	Mechanics' Institution.
Pendleton, near Manchester	Mechanics' Institution.
Pershore	Mechanics' Institution.
Peterborough	Mechanics' Institution.
Plymouth	Mechanics' Institute.
Poole	Town and County Library and Literary Institute.
Portaferry	Mechanics' Institute.
Portsmouth and Portsea	Literary and Philosophical Society.
Prince Town, Dartmoor	Literary Institution.
Radcliffe Bridge and Pilkington	Lyceum and Mutual Improvement Society.
Rawtenstall	Mechanics' Institution.
Reading	Literary, Scientific, and Mechanics' Institution.
Redditch	Literary and Scientific Institute.
Reigate	Mechanics' Institution.
Romford	Literary and Scientific Institution.
Royston	Mechanics' Institute.
Ryde, Isle of Wight	Literary and Scientific Institute.
Saffron Walden	Literary and Scientific Institution.
St. Ives, Cornwall	Institution.
St. Just, near Penzance	Institution.
St. Leonard's	Mechanics' Institution.
Salisbury	Literary and Scientific Institution.
Saltash, near Plymouth	Institute.
Sevenoaks	Literary and Scientific Institution.
Sheerness	Mechanics' Institution.

Shelton, near Newcastle-under-Lyne.	Potteries Mechanics' Institution.
Sherborne - - - - - -	Literary Institution.
Shiffnall - - - - - -	Mechanics' Institution.
Shrewsbury - - - - -	Church of England Literary and Scientific Institution.
Shrewsbury - - - - -	Mechanics' Institution.
Skerton - - - - - -	Christian Institution Society.
Sleaford - - - - - -	Public Library.
Slough - - - - - - -	Mechanics' Institution.
Southampton - - - - -	Polytechnic Institution.
Staines - - - - - -	Literary and Scientific Institution.
Staley-Bridge - - - - -	Mechanics' Institution.
Stamford - - - - - -	Institution.
Stirling - - - - - -	School of Arts.
Stockton-on-Tees - - -	Mechanics' Institute of Literature and Science.
Stoke-upon-Trent - - -	Athenæum.
Stonehouse, near Plymouth -	Literary and Scientific Institute.
Sudbury - - - - - -	Literary Institution and Museum.
Tenterden - - - - -	Mutual Improvement Society.
Tewkesbury - - - -	Mechanics' Institution.
Thame - - - - - -	Mutual Improvement Society.
Tiverton - - - - -	Literary and Scientific Institution.
Trowbridge - - - - -	Mechanics' Institution.
Truro - - - - - -	Literary and Scientific Institution.
Tunbridge - - - - -	Society of Literary and Scientific Enquirers.
Tunbridge Wells - -	Useful Knowledge Institution.
Tyldesley, near Manchester	Mechanics' Institution and Mutual Improvement Society.
Uxbridge - - - - - -	Young Men's Improvement Society.
Wandsworth - - - -	Literary and Scientific Institute.
Wantage - - - - -	Alfred Literary and Scientific Institution.
Ware - - - - - -	Institute.
Wareham - - - - -	Mutual Improvement Society.
Warminster - - - -	Athenæum.
Warrington - - - - -	Mechanics' Institution.
Warrington - - - - -	Museum.
Warwick - - - - -	Athenæum.
Wednesbury - - - -	Mechanics' Institution.
Wellingborough - - - -	Mechanics' Institution.
West Bromwich - - - -	Institution for Advancement of Knowledge.
Whitehaven - - - -	Mechanics' Institution.
Wimborne Minster - -	Society for the acquirement of Useful Knowledge.
Winchester - - - - -	Mechanics' Institution.
Windsor and Eton - -	Literary, Scientific, and Mechanics' Institution.
Woburn - - - - -	Literary and Scientific Institution.
Wolverhampton - - -	Athenæum and Mechanics' Institute.
Woolwich - - - - -	Literary, Scientific, and Mechanics' Institution.
Workington - - - -	Mechanics' Institution.
Wrexham - - - - -	Literary Institution.
Wrington, near Bristol -	Literary Society.
Yarmouth, Great, and Southtown	Young Man's Institute.
Yeovil - - - - - - -	Mutual Improvement Society.

(Signed) Edward Solly *Secretary.*

Society of Arts,
Nov. 3rd, 1852.

APPENDIX E.

EXTRACTS from a LECTURE by Dr. PLAYFAIR on INDUSTRIAL INSTRUCTION on the CONTINENT.

INDUSTRIAL INSTRUCTION OF PRUSSIA.

I WOULD remind you that the secondary education of Prussia is of three kinds; and consists of the *Gymnasia,* or Classical Schools; the *Real* Schools; and the *Gewerbe,* or Trade Schools.

The Gymnasia teach many more *realities* than the Grammar schools of our country, but nevertheless they are chiefly classical. The Real schools profess a general education, like the Gymnasia, but substitute the modern languages for the ancient; preserving, however, Latin, and giving more prominence than the Gymnasia to the physical sciences. In the provinces of the Rhine—in other words, in the chief manufacturing districts of Prussia—the Real schools are the best attended, and perhaps in Berlin also; but, upon the whole, the Gymnasia, which are indispensable for admission to the University, still retain their high position as means of affording a secondary education; and they hold their places more firmly since they have begun to introduce *realities* into their courses. With both these systems, however, I have nothing to do in this Lecture further than to draw attention to the fact, that the general character of all secondary education in Germany is tending towards giving instruction in the wants of the nineteenth century, and not stopping at that considered sufficient in the thirteenth, as many of our classical schools do.

The third system of secondary education, the Trade schools, is, however, directly technical in character. Pupils are not admitted into them until they are fourteen years of age, and therefore it frequently happens that they have had a *real* education previous to their admission. Every pupil before entering them must have had a good primary education in his own language, must thoroughly understand the elements of arithmetic, and the mensuration of plane and solid bodies, and must be able to show that he is a good free hand drawer. The course of instruction consists of two years, and the time given to each object of study is seen in the following scheme:—

SCHEME OF THE TRADE (PREPARATORY) SCHOOLS OF PRUSSIA.

UNDER CLASS (1 year).

	Hours in a week.
Planimetry (plane geometry)	4
Algebra, to equations of the first degree	3
Practical arithmetic	4
Physics	4
Chemistry	4
Free drawing	
Linear drawing	
	35

UPPER CLASS.

a. Winter Session.

Continuation of algebra—trigonometry	3
Stereometry and descriptive geometry	3
Practical calculation	2
Mechanics and machinery	
Laboratory work, and repetitions in chemistry and physics	4
Mineralogy	2
Architecture, contract works, and plans	3
Free drawing	7
Linear drawing	9
	36

b. Summer Session.

	Hours in a week.
Continuation of descriptive geometry and conic sections	3
Application of algebra and trigonometry to the solution of questions in planimetry and stereometry—land surveying	3
Practical calculations (extraction of roots, logarithmic practice, and calculations of capacities in bodies)	2
Machinery and mechanical technology	3
Chemical technology	4
Mineralogy	2
Architecture and building plans	3
Free drawing, modelling	7
Linear drawing	9
	36

In looking at the scheme of instruction, you will scarcely remember that these Trade schools are in fact only preparatory to the Central Industrial Institute of Berlin; but you may naturally inquire—Have such schools arisen in the necessity of the people, or by a political perception of their requirement on the part of the Government? The answer is, that the Government only grants one-half the funds necessary for their annual support, and that the town in which one is must furnish the rest, and build the school-house. No such school is founded unless upon the petition of a locality for a grant in aid; so that they are, in fact, upon the same principles as our own Schools of Design, with this difference, that the localities do more and the Government less than in this country. There are now 25* of these Trade schools in Prussia, viz., 7 in the provinces of the Rhine, 5 in Westphalia, 3 in Prussian Saxony, 2 in Brandenberg, 2 in Pomerania, 3 in Prussia Proper, 2 in Silesia, and 1 in Posen. They are therefore situated so as to direct influence on the chief industrial parts of Prussia. The instruction is not gratuitous, the charge varying from thirty shillings to three pounds annually; and yet about 1,200 scholars are every year receiving the comprehensive technical knowledge offered by these professedly elementary schools. The instruction and examinations are watched by Government, through Commissioners appointed by the Minister of Trade; and the best pupils have the privilege of passing to the Central Institute at Berlin, to which I have now to refer.

THE TRADE INSTITUTE OF BERLIN.

The Trade schools of Prussia are chiefly intended for tradesmen or small producers, such as masons, carpenters, well-sinkers, millwrights, &c.; while the Trade Institute professes chiefly the instruction of engineers, civil or mechanical, architects, and managers of factories and chemical works. The foundation, however, of this Central Institute is different from all others which I have seen on the Continent, and is not likely to be imitated in this country. Not only is its instruction wholly gratuitous, but about 50 out of its 170 pupils receive 30*l.* annually from the Government. The annual cost of the school to the State is 7,000*l.*, of which 1,500*l.* are devoted to the support of poor pupils, and 1,000*l.* are spent in travelling expenses, both professors and students being occasionally sent to foreign countries to acquire a knowledge of recent inventions and new industrial improvements. The chief peculiarity of this institution was its being originally confined to the education of workmen, who, in addition to the principles of their trade, were even taught their mechanical craft in extensive workshops. It is now, however, acknowledged that this was an error, and that the practice of an art can only be learned, satisfactorily, in the workshops of industry. The whole organization of the school has, therefore, been recently changed, and its instruction is now assimilated in character to that given by the other higher industrial institutions of Germany; but, as its past experience is instructive, I have described its present and former systems in the Appendix. Now the instruction is devoted to the higher class of producers, and among its professors are the well-known names of Drückenmüller, Wolff, Dove, Rammelsberg, Magnus, Wiebe, Fink, Freiberg, Pohlke, Kiss, and Boettlicher. As might be expected from men of such eminence, the character of the instruction, though eminently practical, is at the same time highly scientific. The course of instruction is for three years, and the students, before being admitted, must have a "maturity certificate" from a Secondary school, or submit to an entrance examination. Accordingly, no student comes to this Central College without being well acquainted with the elements of mathematics, physics, chemistry, and drawing. This previous knowledge is of the greatest importance, as it relieves the professors from teaching the elements, and enables them to devote their whole time to the application of the sciences. The course of instruction extends over three years, but in the second and third years the students divide into special branches, adapted to the three divisions of (A) mechanics and engineers, (B) chemists, (C) architects and builders.

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* Two of them, however, are only in the act of formation, viz., those at Coblents and Dusseldorf.

The plan of instruction in this school is, to communicate all such information as may be required by a particular manufacturer, although not directly included in the limits of his profession. Thus it is considered necessary that the chemist should be able to construct plans, make estimates, and understand the principles of machinery, in order that he may know how to express his wants to engineers or builders, and be able to see that the contracts are not excessive in price. As the instruction is given gratuitously by the State, only those students are allowed to remain in the institution who give evidence of satisfactory progress. An efficient plan of final examination for the granting of general certificates has not hitherto existed in this school, although now about to be introduced; still the students are in great demand by manufacturers, and it is rare to find men who go out with good-class certificates waiting any considerable time for employment.

In Prussia there are several other technical institutions for engineers, architects, and commercial men; but a description of them is without the limits of my present Lecture.

Saxony.

The Secondary schools of Saxony, like those of Prussia, are of three kinds, viz., Gymnasia, Real, and Trade schools. There are nine Gymnasia,* seven of them being supported by the localities, and two by Government. At present there are only four Real schools,† but three others are being founded. The Trade schools are three in number, and are situated at Cheimnitz, Plauen, and Zittau; they are chiefly supported by Government, the communes finding the locality. The first costs the Government about 1,000*l.* annually; the two latter between 400*l.* and 500*l.* each. Public opinion is still divided as to whether the Gymnasia or Real schools give the best general secondary education, but there is a general agreement as to the advantages of the Trade schools, which are steadily increasing in the number of their pupils. They carry their instruction so far that their pupils may at once pass into the higher division of the

Polytechnic School of Dresden.

This school is placed in a large and handsome building, and is well organized and conducted, although its annual revenue, amounting to 2,600*l.*, is so much less than that of the Industrial Institute of Berlin. The school is divided into three parts, viz., the Under school, the Technical or Upper school, and the Architectural school. It has been found expedient, as in the Institute at Berlin, to make certain fundamental classes common to all students, and then to divide the instruction into specialities, those of the Technical school being—

A. Mechanists.
B. Civil Engineers.
C. Chemists.

The Under part of the school commences generally with students, of sixteen years of ago, and lasts for three years. The instruction given is as follows, the number of hours devoted weekly to each subject being given:—

Lowest Division.

CLASS III.

Winter.	Summer	——	Winter.	Summer	——
Hours.	Hours.		Hours.	Hours.	
5	5	Stereometry and Trigonometry.	2	2	Laws of projection.
5	5	Algebra.	2	2	Plan drawing.
4	4	Experimental Physics.	6	6	Ornamental drawing.
3	3	German.	2	2	Natural history or practical geometry.
3	3	French.			

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* The Gymnasia are placed as follows: two in Dresden, two in Leipsic, and one in each of the following towns: Freiberg, Zwickau, Bautzen, Meissen, Grima. The two latter are supported by Government, the others being communal.

† There are two Real schools in Dresden, one in Leipsic, and one in Anaberg.

CLASS II.			CLASS I.		
Winter.	Summer	—	Winter.	Summer	—
Hours.	Hours.		Hours.	Hours.	
4	4	Analytical Geometry (in the plane)	4	4	Analytical and descriptive geometry.
5	5	Mechanics.	5	5	Mechanics.
4	4	Theoretical Chemistry.	6	5	Machinery.
4	4	Mineralogy.	3	3	Mechanical technology.
2	2	Architectural Science.	4	4	Technical chemistry.
2	2	Practical Geometry (Class III.)	2	2	German and logic.
3	3	German.	2	2	French.
3	3	French.	3	3	English.
6	6	Machine-drawing.	4	4	Machine drawing and perspective.
4	4	Ornamental drawing.	4	4	Architectural drawing.
4	2	Field Surveying (practical).			
4	2	Plan Drawing.			

In addition to these there are for—

Winter.	Summer	—
Hours.	Hours.	
6	6	A. Modelling in wood, and special hours of instruction in machine drawing.
4	2	B. Field surveying, and continuation of practical geometry.
6	6	C. Larger number of hours in the laboratory.

You have now seen what is considered to be the elementary knowledge requisite for the Upper or Technical division of the school, which the students enter at nineteen years of age, remaining two years. The instruction in this division is now as follows :—

Upper or Technical Division.

CLASS II.			CLASS I.		
Summer	Winter.	—	Summer	Winter.	—
Hours.	Hours.	*For all Students.*	Hours.	Hours.	
5	5	Differential and integral calculus.	4	4	Higher (analytical) mechanics.
3	3	Mechanical technology.	4	4	The higher physics.
2	4	Geology.	4	4	Astronomy.
2	2	German and logic.	2	2	National economy.
2	2	English.	2	2	Popular Jurisprudence.
2	4	Book-keeping.	2	2	German and logic.
½ day	—	Geological excursions.	2	2	English.
		Section A.			*For* A.
3	3	Mill machinery and construction.	3	3	Theory of motive powers.
3	3	Higher geodesy.	9	9	Projection of machines.
9	9	Projection of machines.			
		Section B.			*For* B.
3	3	Higher geodesy.	3	3	Brick and stone-work (methods and contracts).
4	4	Roads, railways, and hydraulic engineering.			
1 day	4	Practical working in surveying. Plan drawing.	1 day	4	Practical surveying. Plan drawing.
9	9	Projection of machines and of hydraulic works.	9	9	Building projections.
		Section C.			*For* C.
12	16	Laboratory practice.	16	16	Laboratory practice.

It will be observed, with some surprise, that the native language, German, forms a part of the instruction, even in the highest class; and the reason given for this appears to be satisfactory. It was found that mere technical instruction was apt to contract too much the views of the students, and that they had little inclination afterwards to subjects of general interest; but now, through the German class, the students are kept interested in history and polite literature, so that they go out from the school not less instructed technologists, but more cultivated men. Instruction in the modern languages, besides its technical importance, is also made subservient to this end. The school possesses collections and workshops on a moderate scale, but no large machine workshop, as in Berlin. In the vacation, the students, with the sanction and aid of the Government, are engaged in practical operations; some being placed on the railways to work locomotives and aid in the general traffic, while others are sent to coal-works, mines, iron furnaces, &c., and, generally, under the charge of the Professors. The number of students at the time of my visit was 220, each of them paying 4*l*. 10*s*. annually, except a small number who were excused payment on the ground of poverty; but, in addition to this, there were 27 who devoted their time to drawing and modelling. The number of Professors in the Technical school is 22.

Besides the Technical school, there is, in the same institution, a school of Architecture, possessing 7 professors and 85 students, during the last session. The instruction given was as follows:—

LOWER CLASS.		UPPER CLASS.		REPETITION CLASS.	
Hours.		Hours.		Hours.	
6	Architectural science.	4	Building.	2	Building economy and contract.
5	Arithmetic.	4	Carpentry.	2	Repetition of architecture.
5	Geometry.	6	Statics and mechanics.	6	Statics and mechanics.
3	Industrial physics.	3	German.	2	German.
4	German.	2	Ornamental drawing.	2	Ornamental drawing.
2	Ornamental drawing.	4	Perspective.	2	Perspective.
4	Projection.	6	Architectural drawing.	16	Projection of plans.
6	Architectural drawing.	4	Projection of building plans.		

The "Maturity" examination, which each student must pass before he obtains a certificate, requires very high qualifications on the part of the pupils, and is conducted before a Royal Commissioner, specially appointed for this purpose, and in the presence of numerous persons who are invited to be present.

AUSTRIA.

Austria has but lately established the *Real* system of Secondary instruction, which is, therefore, only in course of development; and, as yet, she has no Trade schools corresponding to those of Prussia and Saxony. On the other hand, she has several provincial Polytechnic colleges, viz., in Pesth, Prague, Gratz, Brun in Moravia, and Lenberg in Galicia; the number of students at these amounting to about 4,000. In all of them the standard of instruction is said to be high; but I have not seen them. I must, therefore, confine myself to the Polytechnic school at Vienna, one of the largest institutions of this kind in Germany, the number of students of the Systematic part of the school being, at the time of my visit, 1,637. The State gives from 60,000 to 80,000 florins annually for its support, and the school funds amount to about 30,000 more, so that the total revenue may be taken at between 10,000*l*. and 11,000*l*. The education is gratuitous; the only sum charged being a matriculation fee of 8*s*. There are only about 25 exhibitioners, who receive sums varying from 10*l*. to 20*l*.

The organization of this institution is peculiar, and requires a little explanation. It is divided into four sections proper, and one section for popular instruction; these sections are:—

A. *Technical*, comprising the physical and mathematical sciences, in their industrial application.
B. *Commercial*, for instruction in all matters involved in the occupation of a merchant.
C. *Preparatory Division*, for the instruction of those who have entered without sufficient preliminary knowledge.
D. *Trade Drawing*.
E. *Popular Section*, for instructing workmen on Sundays and holidays.

With regard to the last section, I may observe that the habits of foreign nations on Sunday have led to the formation of Sunday-schools, for secular and not for religious knowledge: and these I found in every large town on the continent. Last year the attendance of workmen at the Sunday-school in connexion with the Polytechnic Institution at Vienna was as follows:—

For mathematics - - - - -	190
Mechanics - - - - -	116
Experimental physics - - - -	211
Chemistry - - - - -	133
Drawing - - - - - -	731

Besides this general instruction on Sunday, there are extraordinary lectures in mathematics, German, French, English, Bohemian, Turkish, Italian, and stenography.

In Section D, or Trade Drawing, there are seven professors, and the instruction extends from four to five hours daily. The attendance at the time of my visit was as follows:—

Preparatory drawing	**184**
Manufacturing drawing	**86**
Drawing for metal work	**76**
Machine drawing	**14**

As respects the three systematic sections of the institution, the course of instruction generally lasts for five years. The student being in his sixteenth year before he enters the Technical division, must show evidence of possessing a sufficient amount of elementary knowledge.

* * *

The collections of this institution are ten in number, and well adapted for the purposes of study. The models for these are made by workmen on the premises, but there is no general workshop as in Berlin. The laboratory is well arranged, and consists of several rooms admirably fitted up, a special allowance of 120*l.* being annually made for the purchase of material, &c. The number of professors, teachers, and assistants in the institution amounts to 58, exclusive of the house staff. It will, therefore, be apparent, that the institution is on a large scale, and that the instruction is comprehensive in its character, although not so systematic as in some of the other German schools. The examinations for certificates are not made in the regular or open manner of those to which I have already alluded; but it is understood that new regulations with regard to them are under consideration. Nevertheless, I was assured by Chevalier de Burg, the late director, and Professor Redtenbacher, that, notwithstanding the large number of students, the demand for them, by industrial establishments, is greater than can be readily supplied.

BAVARIA.

In Bavaria there are no Real schools, and only a few of the Gymnasia introduce realities into their courses; but there are 26 Trade schools, or, in fact, one such school for every large town. I find by the statistics of 21 schools, which I have obtained, and proportioning for the five, of which I have no account, that there are above 3,000 pupils annually obtaining the high education given in these Trade schools. The schools are supported by the Commune, aided, when necessary, by the Province. The management of the schools and appointment of the professors rests with the locality; but the Government exercises a supervision, and sends Commissioners annually to examine and report upon them to the Minister of Trade. The courses extend over three years; and as the entrance age is twelve, the pupil at fifteen may pass into the higher Polytechnic Colleges. Of these there are three, one being in Munich, another in Nuremberg, and the third in Augsburg. They are chiefly supported by Government, which allows, however, only 39,000* Bavarian florins, or 3,250*l.*, for their support; and the number of pupils amounts to 481, the professors being 34 in number. In addition to these higher Polytechnic schools, there are two Commercial schools, also supported by Government (at Nuremberg and Furt), and there is a Building school at Munich, which is chiefly intended for the instruction of master masons and carpenters. Besides these, there are Industrial schools for workmen on Sundays and holidays; and the pupils attending them cannot be less than from 8,000 to 10,000.

The system of industrial instruction in Bavaria dates from 1833, and so satisfied is the Government with its effect that it continues to support and extend it with great liberality. It would be impossible in this Lecture to describe to you the details of the systems of instruction pursued, even in each of the three Head Colleges; and I confine myself to simply giving you the scheme of the Munich institution, referring you to the Appendix for fuller descriptions. I ought, however, to state, that it would require a union of all three Colleges to make really one Polytechnic Institute; as each of them practically, though not professedly, gives a leaning to particular special branches of the Arts; thus, Munich chiefly devotes itself to civil engineers and architects; Augsburg, to mechanists; and Nuremberg, to chemists. I confine myself, however, to the institution at Munich, as an illustration: it is situated in a large and commodious building, possesses admirable collections, especially one of physical apparatus, and has a modelling and sculpture workshop in great activity. The number of its professors and teachers is 16, and of pupils 307, of whom 83 are foreigners. Its course of general instruction extends over three years, but engineers take a special fourth year's course.

Certificates of proficiency are granted, the examinations being made before a Royal Commissioner, who has to report to the Board of Trade on the efficiency of the institution. The architecture of Bavaria, and the excellent engineering which is observed there, is said to be, in a great measure, due to this school; and it is undoubted that its pupils are in great demand, and fill important positions in industry.

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* Munich receives 18,000 florins, Augsburg 9,000, Nuremberg 12,000; and, in addition, they may receive from 800 to 1,200 florins (1 florin = 1s. 8*d.*) each from pupils.

GRAND DUCHY OF BADEN.

In the Duchy of Baden, the Secondary schools are of three classes, the Gymnasia, the High *Bürger*, and the Trade schools, but the latter do not possess the same high standard of instruction as in other places; and the students of the *Bürger* schools form the food of the Great Polytechnic Institution, while the Trade schools are chiefly devoted to the education of workmen. The Polytechnic school of Carlsruhe is perhaps the most efficient one in Germany; and as its constitution and organization are more nearly allied to any similar institution that might arise in this country, I must enter into its description somewhat in detail. The school is now about 18 years old; but its present state and organization have resulted from the experience of the last ten years. It has two main divisions, viz.:—

A. Preparatory section, consisting of three mathematical classes.
B. The *Fach* schools, or schools of specialties, consisting of—
  a. Engineering.
  b. Architecture.
  c. Forestry.
  d. Chemistry and technology.
  e. Mechanical technology.
  f. Commerce.
  g. Post-office.

The Polytechnic school is under the Minister of the Interior, and is managed by a director, annually elected by the professors from among themselves, and by another self-elective machinery, which appears to be unnecessarily complicated.

a. A special council of teachers, consisting chiefly of the principals of the Special schools.
b. A general council of all the teachers.
c. An executive council.
d. An auditor.
e. A secretary.

Although there are seven Special schools, several of the professors teach in more than one; but dividing them into their respective sciences, we find the following large staff of teachers:—

Mathematics	7	Drawing	2
Natural and physical sciences	5	Ornamental writing	1
Architecture	6	Modelling, carpentry, and machine working	3
Engineering	2		
Forestry	3	General subjects	10
Sculpture	2		

Thus there is a staff of 41 teachers to about 330 students, of whom 112 were foreign to the Duchy, 40 not being of German origin. This institution differs from most schools in Germany by being to a great extent self-supporting, the Government grant being only 32,000 florins, while the expenses are above 50,000 florins. It does indeed seem extraordinary that with a revenue of little more than 4,000*l.* (4,166*l.*), this institution is able to accomplish as much as it does. The cost to each student is about 6*l.* annually.

* * * *

You will observe, however, that this institution differs from all those which we have already examined by splitting its instruction into seven different specialities, and that therefore it deserves the name of a Polytechnic Institution more than the others. The mode of instruction in all the schools is by lectures, practical working in the laboratory, the carpentry and machine shops, and in surveying; while at the same time examinations and repetitions are very frequent. The formal certificates of the Special Technical Schools are said to be in the highest estimation, and command immediate employment to the possessors.

I have now concluded the description of the Industrial schools of Germany, so far as my personal knowledge extends. There is, however, an excellent Polytechnic Institution in Hanover which I have not had time to visit, and therefore regret that I am obliged to omit its description. Reviewing what has been said, and adding a fair proportion for the districts not visited, it is quite certain that at least 13,000 students[*] are being every year systematically instructed in the industrial institutions of Germany; and when you consider the character of that systematic instruction, if you agree in the general argument with which the Lecture commenced, you will be convinced, that the time has come when England must begin to raise an intellectual force to do battle with that mighty one which is rising elsewhere. But I must now pass to France, our worthy rival in industry.

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[*] This is exclusive of the workmen in the Industrial Sunday schools. The number of pupils at these cannot be under from 30,000 to 40,000, although I give this number only as an approximative estimate made from the proportion of systematic pupils to Sunday pupils in the schools from which I have obtained the statistics. For a popular explanation of these schools, and their general effect upon industry, I would refer to Zschokke's excellent little volume, "Labour stands on Golden Feet."

FRANCE.

It is well known that France encourages to a great extent the industrial instruction of its producers. The *Ecole Polytechnique* of Paris, the *Ecole des Ponts et Chaussées*, and the *Ecole des Mines*, have been too often described to require more than a passing reference to them. But as they are chiefly for the instruction of Government *employés* they do not necessarily act immediately on private production. At the same time, it is not to be forgotten that it is the principle of the French Government to act upon its own perception of right by instructing the population, even before formal demands have been made on the part of the public, for the benefit which is thus conferred. It is, therefore, the more surprising, that the middle classes for some time urged their want of an institution for the industrial instruction of their producers, without carrying conviction of its necessity to the Government. Impelled by the urgency of the want, a private institution was raised; and the feeling in its favour was sufficiently strong to induce a capitalist to embark a large sum of money in founding it. This private institution, raised in a capital where the public schools are altogether under the Government, proved that it was a necessity of the times, by its immediate and eminent success. Thus rose the *Ecole des Arts et Manufactures*, now the most important industrial institution in France. It possesses the most eminent men of France as its professors, and it has reared those who promise to be her future brightest ornaments. As a commercial speculation it has been singularly successful, and it still remains under the business direction of the original enterprising capitalist, M. Lavallée. The Government now gives to it a certain number of exhibitions to educate poor students of extraordinary talents, and the Councils-General of twenty-nine departments of France also do the same. The appreciation of its importance to France may best be seen in the Report of the Commission of the Chamber of Deputies appointed to inquire into the budget:—

"You know, gentlemen, this useful establishment, founded in 1829, by the association of eminent professors, with the intention of forming civil engineers, the directors of works, the chiefs of workshops and factories. This private institution, which by its importance rivals in excellence our first public establishments, has created and put in practice a complete system of industrial education. It is at the same time a supplement to our Polytechnic School, and an addition to our various applied schools. Such an institution ministers to one of the first necessities of the age, therefore its success is complete. This is confirmed both by the unanimous opinion of the first manufacturers of the country, and by the ease with which all the pupils educated at it have received employment.

The school possesses 40 professors and teachers, and 300 students, each of whom pay 36*l.* annually. The number of the latter is only limited by the size of the building, and it is in contemplation to remove to one considerably larger. The courses extend over three years, and are compulsory on all, but in the second year the practical operations divide into two parts, the one general, and the other applicable to one of the four following specialities:—

A. Mechanists.
B. Engineers.
C. Metallurgists.
D. Chemists.

Students are not admitted until they are eighteen years of age, and they must furnish proof of possessing a good elementary knowledge of the sciences. The courses of instruction are as follows:—

YEAR I.	YEAR II.	YEAR III.
Descriptive geometry.	Descriptive geometry.	Steam engines.
Analytical geometry and mechanics.	Industrial physics.	Railways.
Transformations of motion.	Mechanics.	Hydrostatics.
Physics (general).	Materials used in construction of machines.	Construction of machines.
Chemistry (general).	Analytical chemistry.	Chemical preparations and organic analysis.
Chemical manipulation.	Industrial mineral chemistry.	Industrial organic chemistry and agriculture.
Hygiene and natural history applied to the arts.	Public works.	Architecture.
Drawing.	Geology.	Mining.
	Manufacture of iron and steel.	Furnaces and foundries.
	Technology (cordage, textile materials, cutting wood, stone, &c.).	Technology (mills; oil-making; spinning; felting; milling; potteries, &c.).

It will be seen by the above scheme, that after the first two headings in the second and third years the subjects are parts of corresponding courses, and in practice they are professed every alternate year to the second and third years' students combined. The greatest attention is paid to drawing and design, and much time devoted to it. The students have to make plans to prove their progress; as, for example, a beet-root sugar factory is wanted; the student, from his knowledge of the conditions of the manufacture, must draw out a plan of works, giving estimates, &c., of its cost. Certificates of proficiency are granted after the most severe examinations extending over many days. I was fortunate enough to be present while these were proceeding, and admired the extent and accuracy of the information possessed by the pupils. But you will ask for the proof of the efficiency of this kind of education for manufacturers; and I reply by stating, that a certificate from this institution is equivalent to assured success in life. Its pupils invariably pass into the most important positions in industry, and not only France, but Spain, Belgium, and England, have learned to value them, as we see by the ready manner in which manufacturers of these countries secure their services. Allow me to give you a few statistics of about 550 of the certificated students, whose occupations are so important that their histories can be traced.

Of this number the following division may be made, all of the occupations being high and responsible:—

Agriculture - - - - -	18	Chemical arts - - - - -	57
Architecture, canals, &c. -	39	Civil engineering, &c. - -	56
Railroads - - - -	119	Machinery - - - - -	30
Professors and teachers - -	42	Metallurgy and mining - -	79
Textile manufacturers - -	36	Paper, commerce, salt-works -	22
Public works - - - - -	53		

But the question of its utility may be put in another way: if foreign countries find the pupils of this institution useful, do they send over their own sons for instruction? To this I reply, that more than 600 foreigners have been educated at this school, and, in analysing its books for statistics to this effect, I was surprised to find, in addition to representatives of the known industrial countries of Europe, numerous students both from North and South America, from Turkey, the Antilles, Hayti, the Mauritius, Madras, Ceylon, Gibraltar, &c. Spain and Belgium send over regularly considerable numbers to this school, and England this year has five or six of her subjects who were obliged to go abroad for that comprehensive instruction which they could not get at home. Experience has shown that it is precisely those countries which do not possess a system of industrial instruction that send the largest proportion of foreigners to be educated there.

Besides this institution, which is devoted to the industrial instruction of the middle classes, you all know of that princely establishment the *Conservatoire des Arts et Métiers*, the object of which is, both by its splendid museums and by the lectures of the eminent men who profess there,—and of whom it is only necessary to mention the names of Morin, Dupin, Pouillet, Peligot, Moll, Blanqui, Wolowski, Regnault, and Payen,—to instruct the working classes in industrial science, and to draw public attention to all new discoveries in industry.

This institution is, however, so well known by its beautiful and instructive collections, that I am spared the necessity of describing them.

Under Colonel Morin, the distinguished director, who has introduced such life and activity into the Conservatoire during the last few years, there are three provincial industrial colleges, each supported by Government at an expense of 300,000 francs, or 12,000*l*. These colleges are situated at Chalons, Angers, and Aix, and contain between 200 and 300 students each, who are boarded and educated at the public expense. The students are of a lower class than those who go to the *Ecole Centrale*, and are educated chiefly as men who may aspire to be master workmen. Accordingly, five hours every day are devoted to study, and seven hours to the workshops. Many of the pupils of these institutions obtain Government employment, and those who have passed their examinations find ready occupations as foremen, draughtsmen, and clerks of works. I have not personally seen these provincial schools, but in conversation with Colonel Morin, the present director, I have been assured of their high state of efficiency.

BELGIUM.

In a lecture on Continental industrial instruction it would be wrong to omit allusion to this important producing nation, but I have not recently visited its institutions. The Belgian Government, however, accepting the lesson of the Exhibition, and being convinced of the necessity of industrial instruction to its producers, has recently sent Commissioners to various countries for the purpose of inquiring into the subject, with the view of immediately establishing a College at Antwerp, and perhaps also at Brussels. Only a few months since M. de Cocquiel made an educational tour in this country, on behalf of the Government; and he could not conceal his astonishment at the character of the instruction with which we had contented ourselves in this country of production. Belgium, however, though it has depended hitherto to a great extent upon the educational resources of the *Ecole Centrale* of Paris, nearly 100 of its manufacturers having been educated there, has not at the same time been altogether negligent in this direction. The University of Liége has special schools of mines, of arts and manufactures; and these have been in operation since 1838. The pupils are admitted to them only after a strict examination in proof of their having the necessary elementary knowledge.

* * * *

It is therefore obvious that Belgium cannot be classed as a country which has neglected the industrial instruction of its producers, although it is now about to give it a fuller and more efficient development.

I have now only a few words to say with regard to other countries, because, with the exception of Denmark, I have no personal knowledge of their industrial institutions. In Madrid there is an institution and museum similar to the *Conservatoire des Arts et Métiers*, but for the systematic instruction of the middle class of producers the *Ecole Centrale* of Paris is still used by Spaniards.

With regard to Scandinavia it will not be necessary to detain you long. It is well known that there is an excellent institution in Stockholm which has exercised the most material influence on Swedish industry; but though anxious to inspect it this year, I found that the time at my disposal would not permit me to do so. In Denmark the secondary education is tending much to the Real system, although there is at present an excellent combination of classical learning with *realities* in the Gymnasia. The Polytechnic Institution of Copenhagen was founded in 1829, and is chiefly supported by Government, which gives 12,000 rixdollars annually, while the fees of the students amount to about 2,000 more. The total revenue of the institution does not therefore reach 1,600*l*. The number of students is not great, there being at present only 44 matriculated "polytechnics," and about 60 other students attending special lectures, while there are 9 professors.

* * * *

I would refer to the Appendix for the account of a most interesting institution, named "The Technical Institute of Copenhagen," which is chiefly devoted to the instruction of workmen, of whom 520 were in regular attendance when I visited it. The institution is, in fact, a school of design, but is remarkable for the detailed applications of art, there being a class for almost every trade; as, for example, for brick-builders, carpenters, cabinet-makers, tin-plate-workers, lock-makers, gas-fitters, goldsmiths, bookbinders, carpet-makers, &c. But besides design, mathematics, physics, the nature of building materials, and other subjects of a like nature, are taught. This is an institution supported by private subscriptions, and the expenditure does not amount to 400*l*. annually.

Before concluding, it may be useful to draw attention to some general points of interest in the systems of instruction which we have examined. In all of them there are differences with regard to the mode of giving instruction, but they are almost uniform in the feeling that the object of Industrial schools is only to teach a pupil how to become an intelligent manufacturer, without attempting to make him one. They content themselves with communicating to him a knowledge of the principles upon which his technical art depends; but for its practice he must go to the workshops of industry. Some of the institutions, as, for example, the "Trade Institute of Berlin," endeavoured at one time to teach practice in workshops attached to the institution; but this plan, as might have been anticipated, was found to be of little advantage, and it is now abandoned by almost all the schools, only one or two being still found hovering on the outskirts of this error. In addition to the folly of attempting to teach the practice of an art within the confines of an institution chiefly devoted to other objects, it was found to be highly detrimental to the progress of the students, who were glad to escape from the mental labour of the classes to the muscular labour of the workshops.

This is the point upon which the producer and the promoter of industrial instruction are likely to disagree, unless they thoroughly understand each other; and I am therefore anxious that there should be no mistake on this subject. We do not think that such schools can substitute a practical training in the workshops, the factory, or the office of the engineer; but we do think, that a producer possessing a knowledge of natural forces will become a practical man in a shorter time than without it, and that he will know how to turn his practice to the best account. Let me instance the case of a surgeon, as an illustration: for a long time surgery was only an empirical art, carried on by monks and Jews, until the Council of Tours, in 1163, prohibited the former from operating, and then it fell into the hands of barbers and smiths. No one doubts that much useful experience was acquired by them; and their empirical experience was converted into a system when Edward IV. allowed no one but barbers to practice in London. It was not till the eighteenth year of George II. that barbers and surgeons were finally separated from each other, and that the latter were allowed to fix the standard of their own qualifications. All the fears expressed by manufacturers now were expressed by the barbers on the eve of their separation from the surgeons; and so alarmed were the former for the safety of the public in the hands of the latter, that they got a provision introduced in the final deed of separation by which surgeons are strictly prohibited from exercising "the feat or craft of barbery and shaving." But does history tell us of any dread evils which arose from giving surgeons more of a scientific and less of a rule of thumb education? No one ever dreamt of turning out a young man from a lecture-room as a ready-made surgeon; he must have had hospital practice before he is launched into his profession, and much general practice before his course in life is assured. But it is not now pretended by any one that his education in science renders him less fit to avail himself of the experience of this practice; on the contrary, it is admitted that it is essential for him, and that he benefits more by the practice than he would have done had he not had the science. The quack or the empiric depends upon experience alone, and often works real cures, but he fails as often, because he is ignorant of the cause of his success, and an application of the same practice under other conditions may produce fatal results. "Science renders the powers of nature the servants of man, whilst empiricism subjects man to their service. The empiric, placing himself on a level with an inferior or unconscious being, employs but a small portion of his power for the advantage of society. He permits effects to govern his will, whilst, by a true insight into their hidden causes, he might govern them."—*Liebig.*

The promoters of industrial instruction do not, therefore, offer it as a substitute for practical training, but consider it to be a means by which the latter can be made more efficacious. They do not think that the seed will grow, unless the land is well tilled by the practical farmer, but they offer to manure the land first, and the ploughing-in the manure will enrich the soil and render it more productive.

Another point, common to the higher industrial institutions abroad, is, that they do not communicate elementary knowledge in science, but only teach its applications to industry. They originally experienced the same evil that we have at present in this school, that the pupils came untrained in science, and that the time was spent in teaching its elements, instead of its applications. But gradually raising their standard of knowledge for admission, the public perceived what was required of them, and came with sufficient preliminary acquirements. Some idea may be formed of the state of education by the fact, that pupils are not generally admitted into the Upper Technical class of mechanics, physics, and machinery, unless they have passed examinations in integral and differential calculus. This condition for admission has a twofold advantage; first, that it enables professors to devote all their time to the industrial applications of science; and then that the Industrial institutions, instead of acting as antagonists to those for general education, actually give them the greatest impulse, and are their most powerful supporters.

We must also observe the favourable results which arise from the close connexion of the sciences and of art in the same institution. Mathematical science is not studied and kept apart as a separate branch of knowledge, as is too frequently done in some of our most important schools and colleges, but she is used as the handmaid and interpreter of all the other sciences, and even of art; and it is with this view that so much time is devoted to her study. Perhaps Aristotle was too limited in his views when he said, "Physics and mathematics make practice;" but Bacon was certainly not in error when he wrote "For as physical knowledge daily grows up, and new actions of nature are disclosed, there will be a necessity for new mathematical inventions." And what a commentary on this text is our present knowledge in astronomy, navigation, logarithms, surveying, the theory of tides, the wave theory of light, the attraction of spheroids, and the mass of the earth! In all the courses of the institution, even in architectural and machinery drawing, mathematics give powerful aid. Drawing, in the same way, is used throughout the courses as a handmaid to every science and art, and is not kept in an isolated position, as in our Schools of Design. Hitherto the practice in them has been to teach students to draw, though it is difficult to know how they could be taught to design for arts, regarding which they have had no instruction either as to their wants or their resources*. Abroad, the Schools of Design form part of the Schools of Industry. In our country we are doing much in a fragmentary and dispersed way, which a little union and system would make far more important to industry than it is now.

The comprehensive system of instruction pursued abroad is found to have a most happy effect on the future career of the student. The manufacturing chemist leaves the school with a sufficient knowledge of the principles of machinery to guide him in its management, or to aid him in the expression of his requirements. He can plan and sketch the buildings, machinery, and apparatus which he may require, and he has been taught enough of building and contract work to know whether the plan of the architect is sufficient, and the charges of the builders within moderation. The architect does not end his education with drawing elevations and planning interiors; but chemistry and physics have shown him how to test the qualities of his building materials, and have taught him the principles of ventilation, lighting, acoustics, and drainage, while mathematics enable him to calculate the stability of his structures. These illustrations are sufficient, because the schemes of instruction indicate the knowledge which it has been found advantageous to communicate to the producer in each art.

The mere fact that industrial schools are increasing abroad, and that the number of their pupils is constantly augmenting, is of itself a sufficient proof of their influence on industry, even had we no proofs more direct than these. But it is, indeed, extraordinary that the proofs are already so palpable; for it might have been expected that, at least, the time of one generation would have been required to develop their effects. The interests of a nation extend much beyond the interests of the one generation which forms its present population, and the statesman will feel sure that the effects already in action will operate with a much increasing power in the future.

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* Mr. Cole, the present enlightened superintendent of the department of Practical Art, has begun to remedy the defect as far as regards the Central School.

APPENDIX F.

RETURN exhibiting the ANNUAL EXPENDITURE on the undermentioned NATIONAL INSTITUTIONS, as shown by the ESTIMATES for 1852-53, and Voted last Session.

	£.
British Museum (Establishment) - - - -	52,343
(New Buildings) - - - -	21,350
„ (Purchases, &c.) - - - -	2,966
National Gallery - - - - - -	2,495
Museum of Practical Geology (exclusive of Geological Survey 5,500*l.*, and Museum of Irish Industry 3,348*l.*)	6,072
Department of Practical Art (exclusive of Provincial Schools 7,870*l.*) - - - - - -	10,050
Total -	£95,276

APPENDIX G.

CORRESPONDENCE between H. R. H. PRINCE ALBERT and the SOCIETY of ARTS, respecting the delivery of a series of LECTURES on the results of the EXHIBITION of 1851.

(1.)

SIR, *Windsor Castle, October* 15, 1851.

I AM commanded by His Royal Highness Prince Albert to request that you will have the goodness to submit the following suggestion for the consideration of the Council of the Society of Arts.

Connected as the Society have been with the original idea for the formation of such an Exhibition as that which has just closed, and with the preliminary arrangements for carrying it into effect, His Royal Highness is sure that they will have taken the warmest interest in its further progress and development, and that they will wish to continue, to a certain degree, their connexion with it, by aiding, as far as in them lies, in the attainment of those advantages to art and industry which it was the object of the Exhibition to endeavour to procure.

Nothing would tend more, in His Royal Highness' opinion, to the accomplishment of that object than a series of lectures given under the direction of the Society of Arts, at their weekly evening meetings, on the probable bearing of the Exhibition on the various branches of science, art, and industry.

The lecturer in each branch being selected for his special knowledge and proficiency in it it should not be his object to show the results to be expected from the Exhibition on art and industry *generally*, but its probable immediate effect on the particular subject of his lectures, and on this he should state his opinion freely and without reserve.

Among the subjects of such lectures I may enumerate the fine arts, chemistry as applied to manufactures, special processes of manufacture, mechanics, railroads, agriculture, tools and implements, commercial relations, political economy, &c., &c., &c.

Differences of opinion would probably be found to exist among the lecturers on these different subjects, as to the effect to be expected from the Exhibition; but as each lecturer would confine himself to a particular subject, and give the result of his own reflections on that subject only, this would be of little importance.

Such lectures could not fail to direct attention most beneficially to these important studies; and His Royal Highness believes that the Society of Arts, in instituting them, would be adopting the surest method of turning the Exhibition to good account, and would still further identify themselves with a scheme which had for its object, not the gratification of a passing curiosity, but the continued improvement and advance of science, art, and industry.

I have the honour to be, Sir,
Your obedient Servant,
C. GREY.

George Grove, Esq.,
&c. &c. &c.

(2.)

Resolutions passed at a Meeting of Council held on Monday, October 20.

That the Council heartily affirm His Royal Highness' recognition of their having always taken the warmest interest in the progress and development of the Exhibition, and of their wish to continue their connexion with it.

That they receive with gratitude His Royal Highness' letter, as a mark of his confidence that the Society may be made an instrument for perpetuating many of the beneficial results originated by that event.

That the Council fully concur in the valuable suggestions made by His Royal Highness, and will proceed to take the necessary steps for carrying them into effect without delay.

(3.)

MY DEAR SIR, *Windsor Castle, October* 22, 1851.

THE Prince sees no objection to my letter being printed for circulation among the members of the Society of Arts.

He desires me to add that, in carrying out his suggestion, everything will depend upon the proper selection of lecturers; and he trusts great care will be taken to secure, if possible, the assistance of the most able and eminent men in their several branches.

I remain,
Yours faithfully,
C. GREY.

George Grove, Esq.,
&c. &c. &c.

LIST of the LECTURES delivered accordingly.

FIRST SERIES.

No. 1. *Nov.* 26, 1851.—Rev. W. Whewell, D.D., F.R.S., Master of Trinity; Inaugural Lecture, "The general bearing of the Exhibition on the progress of Art and Science."

No. 2. *Dec.* 2.—Sir Henry de la Beche, C.B., F.R.S., "Mining, Quarrying, and Metallurgical Processes and Products."

No. 3. *Dec.* 10.—Professor Richard Owen, F.R.S., "Animal Raw Products, used in the Arts and Manufactures."

No. 4. *Dec.* 17.—Jacob Bell, Esq., M.P., "Chemical and Pharmaceutical Processes and Products."

No. 5. *Jan.* 7, 1852.—Dr. Lyon Playfair, C.B., F.R.S., "The Chemical Principles involved in the Manufactures shown at the Exhibition, as a proof of the necessity of an Industrial Education."

No. 6. *Jan.* 14.—Professor J. Lindley, F.R.S., "Substances used as Food."

No. 7. *Jan.* 21.—Professor Edward Solly, F.R.S., "The Vegetable Substances used in the Arts and Manufactures, in relation to Commerce generally."

No. 8. *Jan.* 28.—Rev. Professor R. Willis, F.R.S., "Machines and Tools for working in Metal, Wood, and other Materials."

No. 9. *Feb.* 4.—James Glaisher, Esq., F.R.S., "Philosophical Instruments and Processes."

No. 10. *Feb.* 11.—Henry Hensman, Esq., "Civil Engineering and Machinery generally."

No. 11. *Feb.* 18.—Professor J. Forbes Royle, F.R.S., "The Manufactures of India."

No. 12. *March* 3.—Captain Washington, R.N., F.R.S., "Shipping, particularly Life Boats."

SECOND SERIES.

No. 1. *March* 10, 1852.—John Wilson, F.R.S.E., F.G.S., "Agricultural Products and Implements."

No. 2. *March* 17.—James M'Adam, Jun., Esq., Secretary to the Royal Irish Flax Society, "The Cultivation of the Flax Plant, and the various modes of preparing its Fibres for Manufacture."

No. 3. *March* 24.—Professor James Tennant, F.G.S., "Gems and Precious Stones."

No. 4. *March* 31.—Thomas Bazley, Esq., Member of the Royal Commission, "Cotton as an Element of Industry; its confined supply; and its extending consumption by increasing and improving agencies."

No. 5. *April* 7.—S. H. Blackwell, Esq., F.G.S., of Dudley, "The Iron-making resources of the United Kingdom."

No. 6. *April* 14.—Professor George Shaw, Queen's College, Birmingham, "The Glass Manufacture."

No. 7. *April* 21.—M. Digby Wyatt, Esq., "An Attempt to define the Principles which should determine Form in the Decorative Arts."

No. 8. *April* 28.—Owen Jones, Esq., "An Attempt to define the Principles which should regulate the employment of Colour in the Decorative Arts."

No. 9. *May* 5.—Henry Forbes, Esq., of Bradford, "The rise, progress, and present state of the Worsted, Alpaca, and Mohair Manufactures of England."

No. 10. *May* 19.—Professor D. T. Ansted, M.A., F.R.S., "Non-metallic Mineral Manufactures."

No. 11. *June* 2.—L. Arnoux, Esq., "Ceramic Manufacture, China, Porcelain, Earthenware, &c."

No. 12. *Dec.* 1.—Henry Cole, Esq., C.B., "The international Results of the Great Exhibition."

APPENDIX H.

COPY of MEMORIAL addressed to HER MAJESTY by the ROYAL ACADEMY in May, 1851.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

WE, the President and Council of the Royal Academy of Arts, humbly approach Your Majesty, and respectfully request Your Majesty's attention to some circumstances affecting the condition and objects of an Institution which owes its prosperity and usefulness to the favour of the Crown. Understanding that a measure is in contemplation having for its purpose the removal of the works of Art in the present National Gallery to a site better adapted for their preservation, we consider that, in the event of such removal, an opportunity may present itself for affording to the Royal Academy that amount of accommodation as to space which the Establishment requires, and for want of which its efficiency is at present greatly restricted. We, therefore, beg leave to submit to Your Majesty a statement of the position in which the Institution is placed.

The chief inconveniences of the description referred to, to which the Royal Academy is now subjected, are—

1st. Want of room for the schools.

2nd. Want of room for the Annual Exhibition, especially for the exhibition of Sculpture.

3rd. Want of room for the accommodation of the officers of the Academy.

1st. It is not generally known that the Annual Exhibition of works in Painting and Sculpture takes place in the very rooms which are appropriated at other seasons to the instruction of the students. The room in which Sculpture is exhibited is the Antique Academy, where students draw from casts from the antique statues; and in order to prepare the room for the reception of Sculpture during the Exhibition, those casts require to be periodically removed, and subsequently replaced, such removals seldom occurring without some accidents to the casts.

The room appropriated to the Exhibition of Miniatures is one of the schools for Painting; and the large room adjoining it, called the West Room, is another of those schools. It follows that during four of the most valuable consecutive months, the schools above referred to are of necessity closed. If there were space sufficient for the schools independently of the rooms required for the Exhibition, the interruption might be avoided, and might be reduced to a reasonable vacation as at other seasons.

The school for drawing from the living model, called the Life Academy, is confined to a space, the narrow limits of which can be judged of even from the exterior of the building. It is comprised in the dome over the portico, having a most inconvenient access to it. It is much too small for students in drawing, and absolutely unfit to accommodate students in modelling; and, from its situation and the want of space, is also unhealthy.

The dimensions of the room applied to the uses of a Library are much too small to receive the valuable contents which are now deposited in it, and with every wish on the part of the Academy to add to such means of instruction for the use of the students, it becomes extremely difficult to do so for the reason assigned.

There is no efficient school for Architecture provided in the Academy, from the want of a proper room, and from the insufficiency of wall surface on which to display the fine collection of architectural casts which the Academy possesses; neither is there any room for the Exhibition of Architectural Designs. The pictures, models, and drawings required by the Rules of the Academy to be deposited by members on receiving their diplomas as Royal Academicians form now, from their number, an important and interesting Gallery of British Art, and, if a proper room could be appropriated to them, they might be exhibited to the public; instead of which, they are now necessarily covered over during the time of the Exhibition.

All the above defects are to be considered as interfering directly with the efficiency of the Academy as a School of Art; and while the professors, teachers, and visitors devote their time to impart to the students needful instruction, they have constantly to regret the local impediments which obstruct their efforts.

2nd. The number of works of Art annually excluded from the Exhibition of the Royal Academy amounts to several hundreds. In the present year, the number not received equals that of the works admitted. It is by no means to be supposed that this exclusion takes place in the majority of cases from the want of sufficient merit. Were there two or even three more rooms like the larger rooms of the Academy, they could be well filled with pictures and drawings of great merit. With regard to drawings, a number of artists wait only for the moment when the Academy can provide more space, to send works which would greatly add to the interest of the Exhibition, and tend to the advancement of Art. With additional space for the Exhibition, it would also be possible to avoid placing works of merit so high or so low as to be in a great measure sacrificed.

The want of space and light for the due exhibition of Sculpture has been long noticed, not only by the artists and the public, but in Parliament; and the evil is, in this case, too apparent to require that we should enlarge upon it.

3rd. While some of the schools are necessarily closed for a time from the causes above adverted to, it may be inferred that there is no superfluous room for the accommodation of the officers and attendants of the Academy. By the original regulations of the Institution, the Secretary should reside on the Establishment; but from want of space he is provided with a residence elsewhere at a considerable expense to the Academy. The residence of the Keeper on the premises is indispensable; but even in his case, the accommodations are insufficient; and those of the attendants are throughout reduced to the narrowest and most inconvenient limits.

Without reference to the Royal Academy, but merely to the uses of the building to whatever purposes it may be applied, it remains to observe that the division of the building by the two intersecting public passages or thoroughfares which now separate the lower story into three parts, occasion great inconvenience and loss of space. It is sufficient to point out an evil, which ought perhaps never to have been permitted in the first instance, to induce a reconsideration of this subject, with a view to obviate so glaring a defect in the internal arrangements of the building. Much space is also lost by the vast hall on the side of the National Gallery.

Having thus stated the inconveniences to which the Royal Academy is subjected from want of room, and the serious impediments to its usefulness which these inconveniences occasion, we respectfully invite Your Majesty to consider whether, in the event of the works of Art in the National Gallery being removed elsewhere, it might not be possible to allow the Academy to occupy the space at present required for those works so as to provide sufficient room for all the schools, for the Exhibition of Painting, Sculpture, and Architecture, for the Library, and for the accommodation of the Officers and Attendants.

The whole building would not be at all too large for these objects; and when the time shall come for remodelling the plan of the entrance halls, and making other alterations, the building might be greatly improved in its external appearance, and be rendered more suitable for the accommodation of the Royal Academy.

(Signed) C. L. EASTLAKE, *President*.

DANIEL MACLISE.
W. F. WITHERINGTON.
S. A. HART.
R. WESTMACOTT.

CLARKSON STANFIELD.
DAVID ROBERTS.
PHILIP HARDWICK.
CHARLES BARRY.

J. P. KNIGHT, *Secretary*.

Royal Academy,
26th May, 1851.

APPENDIX I.

Copy of Memorial from London Merchants, &c., on the formation of a Museum of the Natural Productions of all Countries in the City of London.

To the Executive Committee of the Exhibition of the Industry of all Nations.

Gentlemen, London, October 16, 1851.

Understanding that Her Majesty's Commissioners propose forming a collection of the Raw Produce of different countries, shown in the Great Exhibition, we beg leave to express our conviction of the high practical value of this plan.

We anticipate great benefits to merchants, manufacturers, and brokers from the formation of a great trade museum or collection, of which this would be the foundation, and in which specimens of the natural productions or exports of all countries should be deposited, together with such accurate, scientific, practical, and commercial information as can be procured.

Such a museum would at all times give the most valuable aid to the mercantile community, and afford that information which is so constantly required, and which there is now no means of obtaining.

We would beg to suggest that, in order to render such a collection really available for trade purposes, it should be formed in the City of London, and so situated as to be conveniently accessible to those who want to refer to it.

We have the honour to be,
Gentlemen,
Your obedient Servants,

Thomson Hankey, Jun.
John G. Hubbard.
J. H. Pelly.
William Cotton.
J. B. Heath.
H. J. Prescott.
R. W. Crawford.
H. W. Blake.
James Morris.
J. Masterman.
Morris, Prevost, & Co.
John Chapman & Co.
Overend, Gurney, & Co.
Durant & Co.
Geo. Carr Glyn.
Forster & Smith.

Hanson, Brothers, & Co.
Gregson & Co.
Powles, Brothers, & Co.
J. Thomson, T. Moreau, & Co.
Herman Sillem, Son, & Co.
Doxat & Co.
W. C. & H. Harnett.
Alfred Janson.
Cha. R. Harford.
Geo. Fred. Young.
T. Green & Co.
George Denny.
George Fenning.
D. Dunbar.
J. Wild & Sons.
Horne, Eagar, & Co.

On behalf of the Committee for managing the affairs of Lloyd's,
John Robinson, *Pro-Chairman.*

On behalf of Lloyd's Register of British and Foreign Shipping,
Thomas Chapman, *Chairman.*

LONDON: PRINTED BY WILLIAM CLOWES AND SONS, STAMFORD STREET AND CHARING CROSS,
PRINTERS TO THE ROYAL COMMISSION.

EXHIBITION

Official Illustrated Catalogue Advertiser.

(SUPPLEMENT.)

1851.

THE JURY at the EXHIBITION of the INDUSTRY of ALL NATIONS, 1851,

Have awarded their Great Medal to

RICHARD GARRETT & SON,

LEISTON WORKS, SAXMUNDHAM, SUFFOLK,

For the Six following most important Agricultural Implements, viz :—

THE STEAM ENGINE,
THE THRASHING MACHINE,
THE HORSE HOE,
THE GENERAL PURPOSE DRILL,
THE SEED AND MANURE DRILL,
AND THE SEED-SOWING ENGINE.

THEIR ILLUSTRATED CATALOGUE (in the French and English Languages) of all the Implements and Machines manufactured for the improved system of English Farming, may be had on application at their Stand, No. 142, Class 9, in the Great Exhibition; or by Post, at their Manufactory, as above. [I 349

MESSRS. PHILP & WHICKER,

LATE SAVIGNY & CO.,

67, ST. JAMES' STREET, LONDON,

Cutlers and Surgical Instrument Makers

To Her Majesty's Army, the Board of Ordnance, and the Hon. East India Company, the principal Metropolitan and Provincial Hospitals, &c.

EXHIBITED IN CLASS Xc, No. 641.

A VERY complete Assortment of SURGICAL INSTRUMENTS, of the most Improved Construction, and combining all the latest Improvements, suitably adapted for every Operation in Surgery, with the Professors' Names engraved on the Handles of the Instruments, being the most perfect Collection possible to be made.

In consequence of Mr. PHILP having been appointed a Juror for Class Xc, the Firm could not compete for the Prize Medal; but they had the honour of receiving the Medal for their superior Cutlery, consisting of Sportman's, Hunting, and Deer-Stalking Knives, India Boar Spears, Otter and Salmon Spears, Penknives and Scissors, Table, Dessert, and Carving Knives, Pen-making Machines, and fine Cutlery of every description, similar to that which they send to the Indian Empire, where their Cutlery is so much admired and approved.—CLASS Xc, No. 641. *Illustrated Catalogue, p. 465*.* [I 360

THE NEW PHOTOGRAPHIC PROCESS.

COLLODIO IODIDE, PYROGALLIC ACID, ACETIC ACID, GLASS PLATES, and APPARATUS for the above, and all the other branches of the Photographic Art.

HORNE, THORNTHWAITE, and WOOD, Opticians and Manufacturers of Photographic Apparatus and Materials, 121 and 123 Newgate Street, London, have the pleasure of announcing that they have had awarded to them the Prize Medal for Photographic Apparatus, exhibited by them in Class X. at the Crystal Palace. [I 357

105, FITZWILLIAM STREET, SHEFFIELD.

HENRY TAYLOR,

MANUFACTURER OF EDGE-TOOLS.

Engravers', Carvers', Die-Sinkers', Print-Cutters', and all kinds of Fancy Turners' Tools, &c. &c.

ALSO MANUFACTURER OF HAND-HAMMERED CAST STEEL.

PRIZE MEDAL, CLASS XXII.

[I 352

Class XIV., No. 46.—Prize Medal.

FINLAYSON, BOUSFIELD, and Co., Manufacturers of TAILORS' and SHOEMAKERS' THREADS, Flax Mills, Johnstone, near Glasgow.

Threads in Dark Blue, White Brown, and all Colours, in Common and Satin Finish, suitable for any Market; also Shoe Threads of all kinds.

Decision of the Jury :—

"STRENGTH, TASTE, AND NEATNESS IN THREAD." [I 362

APPENDIX I.

Copy of Memorial from London Merchants, &c., on the formation of a Museum of the Natural Productions of all Countries in the City of London.

To the Executive Committee of the Exhibition of the Industry of all Nations.

Gentlemen, *London, October* 16, 1851.

Understanding that Her Majesty's Commissioners propose forming a collection of the Raw Produce of different countries, shown in the Great Exhibition, we beg leave to express our conviction of the high practical value of this plan.

We anticipate great benefits to merchants, manufacturers, and brokers from the formation of a great trade museum or collection, of which this would be the foundation, and in which specimens of the natural productions or exports of all countries should be deposited, together with such accurate, scientific, practical, and commercial information as can be procured.

Such a museum would at all times give the most valuable aid to the mercantile community, and afford that information which is so constantly required, and which there is now no means of obtaining.

We would beg to suggest that, in order to render such a collection really available for trade purposes, it should be formed in the City of London, and so situated as to be conveniently accessible to those who want to refer to it.

We have the honour to be,
Gentlemen,
Your obedient Servants,

Thomson Hankey, Jun.
John G. Hubbard.
J. H. Pelly.
William Cotton.
J. B. Heath.
H. J. Prescott.
R. W. Crawford.
H. W. Blake.
James Morris.
J. Masterman.
Morris, Prevost, & Co.
John Chapman & Co.
Overend, Gurney, & Co.
Durant & Co.
Geo. Carr Glyn.
Forster & Smith.

Hanson, Brothers, & Co.
Gregson & Co.
Powles, Brothers, & Co.
J. Thomson, T. Moreau, & Co.
Herman Sillem, Son, & Co.
Doxat & Co.
W. C. & H. Harnett.
Alfred Janson.
Cha. R. Harford.
Geo. Fred. Young.
T. Green & Co.
George Denny.
George Fenning.
D. Dunbar.
J. Wild & Sons.
Horne, Eagar, & Co.

On behalf of the Committee for managing the affairs of Lloyd's,
John Robinson, *Pro-Chairman*.

On behalf of Lloyd's Register of British and Foreign Shipping,
Thomas Chapman, *Chairman*.

LONDON: PRINTED BY WILLIAM CLOWES AND SONS, STAMFORD STREET AND CHARING CROSS,
PRINTERS TO THE ROYAL COMMISSION.

APPENDIX No. XVII.

RETURN showing the NUMBER of VISITORS and RECEIPTS on the same DAYS of each successive WEEK.

MONDAYS.

Date.	Entrance Fee, and Remarks.	Amount Received at Doors.			Number of Visitors.		
		£.	s.	d.	Paying at Doors.	With Season Tickets.	Total.
May 5	5/	1,362	19	0	5,452	14,500	19,952
12	5/*	1,597	10	0	6,390	14,500	20,890
19	5/*	2,345	0	0	9,380	14,500	23,880
26	1/	920	2	0	18,402	5,000	23,402
June 2	1/	2,129	1	0	42,581	4,000	46,581
9	1/*	2,436	4	0	48,724	5,480	54,204
16	1/	2,854	9	0	57,089	6,680	63,769
23	1/	3,016	11	0	60,331	7,224	67,555
30	1/	2,469	16	0	49,396	3,483	52,879
July 7	1/	2,852	2	0	57,042	4,628	61,670
14	1/*	2,957	8	0	59,148	3,546	62,694
21	1/	3,338	7	0	66,767	3,873	70,640
28	1/*	3,194	13	0	63,893	3,277	67,170
Aug. 4	1/	3,006	18	0	60,138	2,493	62,631
11	1/	2,829	19	0	56,599	2,035	58,634
18	1/	2,506	16	0	50,136	1,389	51,525
25	1/	2,436	14	0	48,734	287	49,021
Sept. 1	1/	2,465	10	0	49,310	924	50,234
8	1/	2,767	17	0	55,357	1,495	56,852
15	1/	2,933	10	6	58,670	1,827	60,497
22	1/	2,863	6	0	57,266	2,098	59,364
29	1/	3,295	15	0	65,915	2,627	68,542
Oct. 6	1/	5,175	16	0	103,516	4,299	107,815
		61,756	3	6	1,150,236	110,165	1,260,401

TUESDAYS.

Date.	Entrance Fee, and Remarks.	Amount Received at Doors.			Number of Visitors.		
		£.	s.	d.	Paying at Doors.	With Season Tickets.	Total.
May 6	5/	1,458	10	0	5,834	14,500	20,334
13	5/	2,229	10	0	8,918	14,500	23,418
20	5/	3,360	15	0	13,443	14,500	27,943
27	1/	1,347	17	0	26,957	5,000	31,957
June 3	1/	2,415	2	0	48,302	4,000	52,302
10	1/*	2,272	4	0	45,444	4,253	49,697
17	1/	3,191	2	0	63,822	4,333	68,155
24	1/	3,186	12	0	63,732	4,662	68,394
July 1	1/*	2,429	10	0	48,590	2,479	51,069
8	1/*	3,169	5	0	63,385	2,577	65,962
15	1/	3,502	1	0	70,041	4,081	74,122
22	1/	3,236	2	0	64,722	3,439	68,161
29	1/	3,308	10	0	66,170	2,866	69,036
Aug. 5	1/	3,236	9	0	64,729	3,340	68,069
12	1/	2,826	19	0	56,539	2,015	58,554
19	1/	2,773	16	6	55,476	1,603	57,079
26	1/*	2,493	10	0	49,870	1,441	51,311
Sept. 2	1/*	2,407	15	0	48,155	1,711	49,866
9	1/	2,795	1	0	55,901	2,114	58,015
16	1/	3,008	9	0	60,169	2,453	62,622
23	1/	2,859	7	0	57,187	3,195	60,382
30	1/*	3,303	4	0	66,064	3,282	69,346
Oct. 7	1/	5,231	10	0	104,630	5,285	109,915
		66,043	0	6	1,208,080	107,629	1,315,709

WEDNESDAYS

Date.	Entrance Fee, and Remarks.	Amount Received at Doors.			Number of Visitors.		
		£.	s.	d.	Paying at Doors.	With Season Tickets.	Total.
May 7	5/	1,790	15	0	7,163	14,050	21,663
14	5/	2,064	15	0	8,259	14,500	22,759
21	5/†	3,512	5	0	14,049	14,500	28,549
28	1/	1,869	4	0	37,384	5,000	42,384
June 4	1/	2,500	16	0	50,016	4,000	54,016
11	1/	2,160	19	0	43,219	4,535	47,754
18	1/	2,897	7	0	57,947	4,716	62,663
25	1/	2,691	14	0	53,834	4,611	58,445
July 2	1/	2,363	18	0	47,278	2,121	49,399
9	1/	2,710	6	0	54,206	3,849	58,055
16	1/	2,910	4	0	58,204	2,422	60,626
23	1/*	2,438	14	0	48,774	1,825	50,599
30	1/	2,835	6	0	56,706	1,676	58,382
Aug. 6	1/	2,833	4	6	56,664	2,475	59,139
13	1/	2,264	10	6	45,290	2,527	47,817
20	1/	2,217	8	0	44,348	219	44,567
27	1/	1,896	1	0	37,921	307	38,228
Sept. 3	1/	2,080	12	0	41,612	305	41,917
10	1/	2,395	5	6	47,905	2,201	50,106
17	1/	2,551	1	0	51,021	2,736	53,757
24	1/	2,572	12	0	51,452	3,088	54,540
Oct. 1	1/*	2,830	11	0	56,611	2,460	59,071
8	1/	5,283	3	0	105,663	4,097	109,760
		59,670	11	6	1,075,526	98,670	1,174,196

THURSDAYS.

Date.	Entrance Fee, and Remarks.	Amount Received at Doors.			Number of Visitors.		
		£.	s.	d.	Paying at Doors.	With Season Tickets.	Total.
May 1	—	—			—	25,000	25,000
8	5/	2,018	0	0	8,072	14,500	22,572
15	5/	2,426	0	0	9,704	14,500	24,204
22	5/	3,797	11	0	15,190	14,500	29,690
29	1/	2,375	18	0	47,518	5,000	52,518
June 5	1/*	2,566	17	0	51,337	4,000	55,337
12	1/*	2,233	7	0	44,667	3,651	48,318
19	1/	2,984	12	0	59,692	4,171	63,863
26	1/	2,722	10	0	54,450	3,331	57,781
July 3	1/	2,651	19	0	53,039	2,599	55,638
10	1/	2,958	0	0	59,160	2,332	61,492
17	1/	3,023	5	0	60,465	3,281	63,746
24	1/*	2,286	1	0	45,721	1,737	47,458
31	1/	2,800	16	0	56,016	1,293	57,309
Aug 7	1/	2,859	16	0	57,196	2,922	60,118
14	1/	2,386	0	0	47,720	1,732	49,452
21	1/	2,470	2	6	49,402	1,060	50,462
28	1/	2,167	11	0	43,351	894	44,245
Sept. 4	1/	2,137	18	0	42,758	1,451	44,209
11	1/	2,637	19	6	52,759	2,068	54,827
18	1/	2,810	1	6	56,201	2,399	58,600
25	1/	2,725	14	0	54,514	2,647	57,161
Oct. 2	1/*	3,080	12	6	61,612	2,686	64,298
9	1/*	4,344	7	6	86,887	3,926	90,813
		62,464	18	6	1,117,431	121,700	1,239,131

* Wet.

† Derby day

Return showing the Number of Visitors and Receipts on the same Days of each successive Week—*contd.*

FRIDAYS.						SATURDAYS.					
Date.	Entrance Fee, and Remarks.	Amount Received at Doors.	Number of Visitors.			Date.	Entrance Fee, and Remarks.	Amount Received at Doors.	Number of Visitors.		
			Paying at Doors.	With Season Tickets.	Total.				Paying at Doors.	With Season Tickets.	Total.
		£. s. d.						£. s. d.			
May 2	£1	560 0 0	560	16,000	16,560	May 3	£1	482 0 0	482	16,000	16,482
9	5/	1,824 10 0	7,298	14,500	21,798	10	5/	1,843 15 0	7,375	14,500	21,875
16	5/	2,556 10 0	10,226	14,500	24,726	17	5/	2,472 5 0	9,889	14,500	24,389
23	5/†	4,095 10 0	16,383	14,500	30,882	24	5/	5,078 0 0	20,312	14,500	34,812
30	2/6	2,839 9 0	22,716	12,000	34,716	31	5/	1,770 15 0	7,083	12,000	19,083
June 6	2/6	2,558 11 0	20,468	5,666	26,134	June 7	5/	1,523 15 0	6,095	6,891	12,986
13	2/6	2,206 5 0	17,650	6,870	24,520	14	5/	1,634 17 0	6,539	7,563	14,102
20	2/6	2,819 4 6	22,553	9,281	31,834	21	5/	1,674 10 0	6,698	6,034	12,732
27	2/6	2,969 6 0	23,754	5,279	29,033	28	5/	1,590 16 0	6,363	5,138	11,501
July 4	2/6	2,592 2 6	20,737	5,270	26,007	July 5	5/	1,565 15 0	6,263	5,484	11,747
11	2/6	3,145 17 6	25,167	4,900	30,067	12	5/	1,589 15 0	6,359	4,822	11,181
18	2/6	3,762 7 6	30,099	5,239	35,338	19	5/*	1,360 15 0	5,443	3,884	9,327
25	2/6	2,984 0 0	23,872	3,010	26,882	26	5/	1,478 0 0	5,912	4,487	10,399
Aug. 1	2/6	2,852 2 6	22,817	4,080	26,897	Aug. 2	5/	1,324 9 0	5,298	4,427	9,725
8	2/6‡	1,920 11 6	15,365	3,101	18,466	9	2/6	1,584 15 0	12,678	5,670	18,348
15	2/6	2,151 7 0	17,211	3,650	20,861	16	2/6	1,592 7 6	12,739	4,002	16,741
22	2/6	1,957 12 6	15,661	2,317	17,978	23	2/6	1,434 17 6	11,479	3,429	14,908
29	2/6*	1,559 17 6	12,479	3,111	15,590	30	2/6	1,306 15 0	10,454	2,598	13,052
Sept. 5	2/6	1,593 7 6	12,747	2,979	15,726	Sept. 6	2/6	1,198 15 0	9,590	3,082	12,672
12	2/6	1,890 0 0	15,120	2,839	17,959	13	2/6	1,451 15 0	11,614	4,659	16,273
19	2/6	2,227 2 0	17,817	3,671	21,488	20	2/6	1,604 13 0	12,837	4,529	17,366
26	2/6	2,415 15 0	19,326	4,368	23,694	27	2/6	1,852 2 6	14,817	5,419	20,236
Oct. 3	2/6	3,354 3 0	26,833	5,218	32,051	Oct. 4	2/6	2,862 14 0	22,902	7,738	30,640
10	2/6	4,914 1 6	39,312	7,601	46,913	11	2/6	4,845 13 6	38,765	14,296	53,061
		61,749 13 0	456,170	159,950	616,120			45,123 15 0	257,986	175,652	433,638

* Wet. † Oaks day. ‡ Parliament prorogued.

JAMES J. WADE.

REMARKS.

To understand the amount of reliance which can be placed upon the above return, it will be well to explain the nature of the data upon which it is formed.

The amount received at the doors, and therefore the number of persons paying, on each day, may be taken as perfectly accurate, as every precaution was necessarily taken in checking it by means explained elsewhere.

After the 5th June, the increasing number of visitors having become a subject of considerable public interest, the Executive Committee requested the Police to take measures to count the number of persons coming in and going out. Deducting the number of persons paying each day from the total number entering, the residue gives a fair approximation to the number of people who made use of Season Tickets. It is true that this mode of estimating includes with Season Ticket-holders, some of the staff, jurors, press, exhibitors, attendants, &c., who had free admission; but the greater number of these came in before the doors were open to the public, and were not counted by the Police; and in general, if known to have business in the building, they were not counted, at whatever hour they came in.

From the opening until the 5th June, the number of visits with Season Tickets is only conjectural and the total number of visitors on each day must therefore be considered in the same light.

Comparing together the visits on different days of the week with equal payments, it appears that during the days on which the entrance was five shillings:—

On three Mondays the number of visitors was	64,722,	average	21,574
On three Tuesdays	,,	71,695	,,	23,898
On three Wednesdays	,,	72,971	,,	24,323
On three Thursdays	,,	76,466	,,	25,488
On three Fridays	,,	77,406	,,	25,802
On three Saturdays	,,	81,076	,,	27,025

This proportion is, however, not much to be depended upon, as the apprehension of the public acting in different directions rendered the number of visitors in the early part of the first week unnaturally low, and that in the latter part of the third week unnaturally high. The number also of sums from which the average is struck is too small to get rid of these causes of error.

The comparison of the four shilling days of twenty successive weeks will give more reliable results:—

On twenty Mondays the number of visitors was		1,195,679,	average	59,783
On twenty Tuesdays	,,	1,244,014	,,	62,200
On twenty Wednesdays	,,	1,101,225	,,	55,061
On twenty Thursdays	,,	1,137,665	,,	56,883

In comparing the receipts at different rates of payment, it appears that on—

		£.	s.	d.		£.	s.	d.
2 days, at 1*l.*, the sum received was		1,042	0	0,	average	521	0	0
28 days, at 5*s.*	,,	61,347	7	0	,,	2,191	0	0
30 days, at 2*s.* 6*d.*	,,	72,447	11	0	,,	2,414	17	0
80 days, at 1*s.*	,,	221,971	3	0	,,	2,774	12	0
Total Receipts at doors		356,808	1	0				

In comparing the number of visits at the different rates it appears that—

During	141 days	773,766	entered with Season Tickets,	average per day		5,473
,,	2 ,,	1,042	paid 1*l.*	,,	,,	521
,,	28 ,,	245,389	paid 5*s.*	,,	,,	8,763
,,	30 ,,	579,579	paid 2*s.* 6*d.*	,,	,,	19,319
,,	80 ,,	4,439,419	paid 1*s.*	,,	,,	55,493
		6,039,195	total number entering the Building.			

The sale of Season Tickets commenced on the 26th February, and continued until the 31st July, at the original rate of 3*l.* 3*s.* for a gentleman's ticket and 2*l.* 2*s.* for a lady's. After the 31st July the rates were reduced to 1*l.* 10*s.* and 1*l.* respectively, though but few were sold. The following was the total number sold:—

				£.	s.	d.
13,359	tickets,	at 3*l.* 3*s.*,	yielded	42,080	17	0
11,927	,,	at 2*l.* 2*s.*	,,	25,046	14	0
135	,,	at 1*l.* 10*s.*	,,	202	10	0
184	,,	at 1*l.*	,,	184	0	0
25,605				67,514	1	0

H. C. O.

APPENDIX No. XVIII.

RETURN of SCHOOLS reported to the EXECUTIVE COMMITTEE as having entered the Building.

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
No record of date.	St. Paul's, Covent Garden	National	300	
	Mortlake	,,	40	
	Charlton	,,	60	
	Eltham	,,	70	
	Harrow-on-the-Hill	- -	40	
	Spitalfields	Jews' Infant	150	
	- - -	Foundling Hospital	80	
	St. Michael's, Stockwell	- -	70	
	Greenwich	Royal Naval	457	
	Argyll, Bath and Bristol	Mr. Jay's	150	
	Westminster and Highgate	Infant	600	
	Christ's Hospital	- -	900	
	St. Olave's	- -	315	
	Strand-on-the-Green	- -	60	
	Maidenhead	- -	152	
	Trinity St. Giles	- -	40	
	Chiswick	National	52	
	Reading	- -	67	
	Parker Street, Drury Lane	- -	40	
	- - -	Jewish Orphan Asylum.	150	
	- - -	St. Ann's	300	
	Hastings	National	*	4,093
July 9	Harpenden	British	16	
"	St. Andrew's, Somersetshire	- -	*	
"	Bancroft	- -	128	144
10	St. Olave's	- -	230	
"	St. Mary's, Strand	- -	115	
"	Bloomsbury	French	20	
"	Chiswick	- -	43	408
14	- - -	Duke of York's	380	
"	St. Martin's	- -	50	
"	Hackney	Dr. Smith's Sunday	20	450
15	Tooting	- -	34	
"	- - -	Foundling	69	
"	Soho	Jews' Infant	19	
"	Clamping	- -	28	
"	Quebec Chapel	- -	18	
"	Havering	National	27	
"	Beddington, Surrey	- -	37	232
16	- - -	Welch	193	
"	Hampstead	- -	12	
"	Farringdon Within	- -	8	
"	St. James', Worship Street	- -	13	
"	Clerkenwell	Charity	203	
"	Greenwich	Union	180	
"	- - -	Licensed Victuallers'	130	
"	St. Andrew, Holborn	- -	183	
"	Sevenoaks, Kent	- -	25	
"	Farnham	- -	32	
"	Haver Hill	Orphan	183	
"	Farnham †	- -	100	
"	Aldersgate Ward, City ‡	- -	114	
"	St. Michael's, Strand	- -	14	1,390

* Number uncertain. † By Bishop of Winchester. ‡ By Sir John Cass.

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
July 17	Romford	British	131	
"	Brentford	,,	134	
"	Old Alresford, Hampshire	- -	32	
"	- - -	Life Guards'	25	
"	Edgeware	- -	15	
"	Crayford†	- -	28	
"	Hoxton	- -	20	385
18	- - -	Caledonian	-	113
21	Kew	Her Majesty's	50	
"	- - -	Ragged	36	
"	Springfield, Essex	- -	82	
"	- - -	Duke of York's Training.	*	168
22	- - -	Foundling Orphan	90	
"	Christ Church	- -	54	
"	Essex	- -	25	169
23	Hampstead	Ashler	20	
"	Colubrook	Charity	54	
"	Dartford	Union	54	
"	Cripplegate-within	- -	102	
"	Croydon	National	103	
"	Longstock, Hampshire	- -	25	
"	Kensington	British	98	456
24	Richmond	National	154	
"	Croydon	British	38	
"	Christ Church	- -	27	
"	Kingston	Union ‡	50	
"	- - -	Sailors' Orphan	17	
"	Wimbledon	National	109	
"	Hornsey	,,	130	
"	Kensington	St. Mary Abbot's	194	
"	Uxbridge	- -	28	
"	St. John's	National	33	780
28	Windsor Park	Queen's	45	
"	Wells Street	National	40	
"	- - -	Coloured Orphan	26	
"	Hackney	Sunday	21	132
29	Hanwell	National	64	
"	Richmond	Sunday	*	
"	Aldersgate	- -	110	
"	Battersea	- -	31	
"	St. Margaret's Hospital	- -	29	234
30	St. Sepulchre Church	- -	41	
"	Whitechurch, Oxfordshire	Charity	33	
"	Oakham	- -	22	
"	All Saints, St. John's Wood	Sunday	45	
"	Great Marlow	- -	116	
"	Banstead, Surrey	- -	48	
"	St. Paul's, Wilton Place	- -	25	
"	- - -	Commercial Travellers'	122	
"	St. Martin's-in-the-Fields	- -	286	
"	Chelmsford	- -	240	
"	Newmarket	- -	57	
"	Walton-on-Thames	- -	26	
"	Denham	- -	30	
"	- - -	Royal Military Asylum	32	1,123

* Number uncertain. † By Rev. Mr. Creighton. ‡ Inmates.

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
July 31	Kensington	British	50	
"	Norwood	Convent	31	
"	St. Mary's, Hammersmith	- -	*	
"	St. George's-in-the-East	- -	*	81
Aug. 1	Marylebone†	- -	-	128
4	Christ Church, St. Pancras	- -	60	
"	Tunbridge Wells	Sunday	43	103
5	Sunbridge	,,	21	
"	Wolverton, Bucks‡	- -	170	
"	Croydon	British	36	
"	All Saints	- -	160	387
6	Windsor	National	45	
"	Windsor§	Free	70	
"	Clewer, near Windsor‖	- -	50	
"	Slough¶	Charity	69	
"	Kensington††	British	43	
"	Burlington	- -	23	
"	Abbotts Langley	- -	61	
"	Putney	- -	33	
"	Ickleford, Herts	- -	53	
"	Putney	Watermen's	26	
"	Hackney Gravel Pit	- -	30	
"	Slough	National	30	
"	Waltham, Essex	- -	35	
"	Richmond	Free	12	
"	North Crag, Kent	- -	*	
"	Horton, Huntingdon	- -	*	
"	Peterborough	- -	20	
"	Putney	St Martin's Charity	26	
"	Richmond	Charity	17	643
7	Palestine Place	Hebrew	20	
"	Westminster	Rev. James Parkins'	19	
"	St. James's	National	18	
"	Deptford Creek	- -	55	
"	St. George's, Middlesex	- -	105	
"	Bromley	- -	30	
"	Haverstock Hill	Orphan Working	250	
"	Langbourne	- -	60	
"	Reading, near Chelmsford	- -	32	589
11	Aylesbury	Charity	32	
"	Henley	- -	53	
"	Broadstairs	- -	58	
"	Bread Street Ward	- -	70	213
12	Kentish Town	National	67	
"	Pentonville	,,	42	
"	Handley	,,	72	
"	Cheame	,,	91	
"	Hackney	Union	72	
"	Deptford	- -	75	
"	Isleworth	British	78	
"	Great Greenford	Charity	13	510

* Number uncertain.
‡ By Mr. M'Connell.
‖ By Mr. Carter.
†† By J. Davis, Esq.
† By Sir B. Hall.
§ By Mr. Stevenson.
¶ By Mr. Tooke.

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality	Name of School.	No. of Children in each School	Total each day.
Aug. 13	Camberwell	British	121	
″	North London	,,	46	
″	Stamford Street	Benevolent Society	66	
″	Kensington	British	82	
″	Ewell, Surrey	National	57	
″	Kensington	St. Mary Abbots	56	428
14	Carshalton	National	63	
″	Croydon	Friends'	188	
″	Teddington	- -	133	
″	Tottenham	- -	72	
″	St. James's	- -	72	
″	St. Thomas's	Charter House	40	
″	Hackney Gravel Pit	- -	18	
″	Stratford	National	104	
″	Billingsgate Ward	- -	57	
″	Stepney	Union	34	781
18	Hampstead	- -	24	
″	Vintry Ward	- -	84	
″	West Clandon, Guildford	- -	39	
″	Goodman's Fields	German and English	33	180
19	Spitalfields	National & Parochial	104	
″	Sussex	Charles's Sunday	29	133
20	Upper Tooting	National	64	
″	St. Peter's, Stepney	Sunday	31	
″	St. George's, Hanover Square	- -	246	
″	Clapham Rise	British Orphan	63	404
21	- - -	Jews' Free	55	
″	Aldgate Ward	Charity	78	
″	Harp Alley	British	15	
″	Sloane Street, Chelsea	National	50	
″	Clapham Rise	British Orphan	39	
″	Hammersmith	Charity	150	
″	Putney	National	40	
″	- - -	Benevolent Society's	70	
″	Woolwich	- -	1,555	2,052
25	- - -	Blue Coat	-	30
26	St. Peter's	- -	160	
″	Hurstperpoint, Sussex	- -	13	173
27	St. George's, Hanover Square	- -	24	
″	Battersea	British	29	
″	Fish Street Hill	,,	35	
″	Kentish Town	,,	41	
″	Cannon Street East	Commercial	36	
″	Gravel Pit	- -	26	191
28	- - -	Hebrew	27	
″	Deptford	- -	51	
″	All Saints, Oxford Street	- -	55	
″	Castle Baynard Ward	- -	30	
″	Hampton	Free	51	
″	Bermondsey	- -	102	
″	Kent Road	Deaf and Dumb	20	
″	Red Cross Street, Cripplegate	Lady Hallis'	157	
″	Bishopsgate Ward	Green Coat	71	
″	Hendon, Middlesex	Charity	100	
″	Greenwich	Roan's Charity	179	
″	,,	Trinity	60	
″	,,	Blue Coat	27	
″	,,	National	100	
″	Guildford Street, Russell Sq.	- -	25	1,0

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
Sept. 1	Chelsea Hospital	- -	36	
"	Burlington	- -	35	
"	St. George's, Ramsgate	- -	85	156
2	Hillingdon	National	103	
"	Cirencester	Blue and Yellow Charity.	122	
"	Road House, Stroud	Mr. Horne's	19	
"	East Keswick, Yorkshire	Lawrence	10	254
3	St. John's Wood	Private	15	
"	Fleet Street	Neal's Foundation	12	
"	St. George's, Hanover Square	- -	25	
"	Wandsworth	British	95	
"	Lamb's Conduit Street	Industry	19	
"	Richmond	National	100	
"	Homerton	Sunday	19	
"	North Cray, Kent	Charity	52	
"	Arundel	Duke of Norfolk's	55	
"	Abbey	British	390	
"	Craven Chapel	,,	7	789
4	Hind Street	,,	71	
"	Christ Church, Bloomsbury	National	21	
"	Woolwich	Trinity Episcopal	122	
"	Kilburn	National	54	
"	Kensington	,,	113	
"	Isleworth	Union	13	
"	Weybridge	National	38	
"	Norwood	Free	33	
"	Walworth	National	43	508
5	- - -	Deaf and Dumb	-	23
8	Brighton	British	-	42
9	Richmond	Union	36	
"	Chelsea Hospital	Normal	36	
"	Elstree, Edgeware	- -	23	
"	Bristol	Deaf and Dumb	39	
"	Clapham	Mr. Noulson's	10	144
10	Curzon Street, Mayfair	- -	35	
"	St. George's, Southwark	Catholic	53	
"	St. George's, Hanover Square	- -	22	
"	Wilton, near Salisbury, Wilts	Free	19	
"	Ealing Grove	Charity	60	
"	Chelsea	Trinity	55	
"	St. Mary's, Newington	Parochial	52	
"	Harrow	Sunday	9	
"	Carlton House	- -	16	
"	Vauxhall Square	Charity	16	
"	Brixton	Industry	19	
"	Richmond	Union	38	394
11	London	St. Ann's Society	61	
"	City of London	National	47	
"	Rochester	Union	79	
"	Watford	Charity	63	
"	Great Stanmore	National	49	
"	Lambeth	Parochial	46	
"	Hors	,,	56	
"	Woodford, Essex	National	56	
"	St. Ann's, Soho	- -	*	
"	St. Mary's, Barnes	- -	66	
"	Charter Lane	- -	56	
"	St. Saviour's Parish	Lady Newcom	26	
"	St. Saviour's, Southwark	- -	216	821

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
Sept. 15	Bedminster	National	12	
″	St. James's, Holloway	- -	61	
″	Spicer Street, Spitalfields	- -	60	
″	Hertford	Mr. Pearson's	15	
″	Cirencester, Gloucester	British	60	
″	Wormwood Street, City	- -	15	223
16	St. George's, Bloomsbury	- -	292	
″	Christ Church	Ramsgate	24	
″	Kingston	Charity	32	
″	Clapham	National	206	
″	Kingston	Public	33	587
17	Cripplegate Chapel	Domestic Mission	42	
″	Spicer Street, Spitalfields	,, ,,	13	
″	Albany Street, Regent's Park	British	61	
″	Woolwich	Royal Artillery	218	
″	- - -	Female Orphan	163	
″	Epsom	National	26	
″	Twickenham	,,	107	
″	Christ Church, Surrey	Parochial	68	
″	Crown Court, Covent Garden	- -	397	
″	Blackfriars Road	Christ Church	144	1,239
18	Deptford	Dean Stanhope's	73	
″	Lambeth	Union	58	
″	Brixton	British	46	
″	St. Saviour's, Southwark	- -	196	
″	Villa Real	Jewish	24	
″	Wandsworth	National	155	
″	Albany Place	- -	64	
″	St. Martin's-in-the-Fields	- -	25	
″	Hampton Wick	Dr. Lynn	74	
″	Westminster	Blue Coat	106	
″	Bermondsey	Union	131	
″	City of London	National	101	
″	Colchester	British	99	
″	Trowbridge	Tabernacle	122	
″	Trowbridge	Parish	95	
″	Frome, Somerset	Private	19	
″	Hayes	National	43	
″	Trowbridge, Somerset	Wesleyan and Baptist Sunday.	1,000	
″	Bradford, Somerset	Charity	53	
″	Wortley, Somerset	,,	45	
″	Nancy, Somerset	,,	28	
″	Frome, Somerset	Blue Coat	25	
″	West Ashton, Somerset	National	195	
″	Charles St., Westminster Rd.	New Jerusalem	46	
″	Romsey, Hants	Nowes' Charity	34	
″	Elstree, Herts	National	20	
″	Bermondsey	Heralds'	12	
″	Spitalfields	Domestic Mission	30	
″	St. Paul's, Covent Garden	- -	15	
″	Clapham Park	Mr. Long's	12	
″	Cuckfield, Sussex	National	10	
″	Blackfriars Road	Christchurch	10	
″	Lisson Grove	St. Paul's	23	2,989
19	- - -	Deaf and Dumb	-	30
22	Willesden	- -	113	
″	St. Dunstan's	- -	68	
″	Brighton	- -	41	
″	- - -	Ashton's Charity	30	
″	Ebeley, Gloucester	- -	26	
″	Shenley, Herts	National	23	301

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
Sept. 23	Denmark Hill	St. Matthew's	39	
〃	Stockwell	National	73	
〃	Cromer Street	British	24	
〃	Harlow, Essex	- -	26	
〃	- - -	Barnard and Smoberts	87	
〃	Kensall Green	National	22	
〃	New Ormond St., Queen Sq.	St. John's Servant	22	
〃	St. John's Wood	Catholic	24	
〃	Southampton	National	22	339
24	St. Pancras	Parochial	46	
〃	Brook Street	Ragged & Industrial	57	
〃	Hertshaw	Free Grammar and National.	411	
〃	Queenhithe Ward, Thames St.	- -	37	
〃	Hounslow	National	102	
〃	Southwark	Wesleyan	119	
〃	Bristol	Blue Coat	92	
〃	Croydon Street, Marylebone	Industrial	10	
〃	Chapel Street, Cripplegate	Domestic Mission	46	
〃	St. John's	Female Servant	74	
〃	St. John's Wood	Catholic	24	
〃	St. Barnabas	Pimlico	16	
〃	Greenwich	Royal Naval	352	1,386
25	Christ's Church, Chelsea	National	66	
〃	- - -	Brewers'	57	
〃	Wandsworth	Industry	36	
〃	Crayford, Kent	National	20	
〃	Battersea	British	16	
〃	Wandsworth	National	35	
〃	Bow Road	St. George's	122	
〃	Trent Church, East Barnet	- -	18	
〃	Little Guildford Street	National	82	
〃	Bermondsey	Parochial	67	
〃	Romford	National	162	
〃	Stepney, Ratcliffe, and Mile End Old Town.	- -	178	
〃	St. Mark's, Windsor	- -	18	
〃	Barnet	National	98	
〃	Grafton Street, Fitzroy Sq.	- -	12	
〃	Windsor	British	104	
〃	St. Bride's, Fleet Street	- -	35	
〃	Notting Hill	National	197	
〃	Paddington	Ragged	63	1,386
29	- - -	,,	8	
〃	- - -	Sailors' Orphan	32	
〃	Homerton Chapel	- -	35	
〃	Hackney	Industry	12	87
30	Amersham	British	50	
〃	Marylebone Street	Catholic	21	
〃	Hoddesden, Herts	British	32	
〃	Henley	National	59	
〃	St. Laurence, Ramsgate	,,	28	
〃	Hackney	Pembury	62	
〃	Hever, Kent	- -	14	266
Oct. 1	St. Pancras	- -	122	
〃	St. Clement Danes	- -	112	
〃	St. George's, Chelsea	- -	78	
〃	Dalston	Industry	12	
〃	Edmonton	Latimer's	42	
〃	St. Leonard's, Bromley	National	73	
〃	West Hackney	,,	43	
〃	Long Lane	Mr. Baylis's	20	
〃	Woodhill, Hatfield, Herts	- -	12	

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
Oct. 1	St. John's Wood	Miss Hurst's	10	524
2	Westminster Chapel	- -	423	
"	St. Matthew's, Cold Harbour Lane, Camberwell.	- -	31	
"	Wilts	Colonel Buckley's	10	
"	Field Lane	Ragged	43	
"	East Greenwich	,,	24	
"	Barnes Workhouse	- -	25	
"	Tottenham	Free	43	
"	Dalston	Industry	12	
"	Stoke Newington	Parochial	60	
"	East Ham	National	37	
"	Merton, Surrey	,,	36	
"	St. Luke's Workhouse	- -	59	
"	Foot's Cray, Kent	Sunday and National	73	
"	Hammersmith	Wesleyan	106	
"	Twickenham Church	- -	106	
"	Ealing	National	21	
"	Bayswater Chapel	Sunday	20	
"	Christ Church, Maida Hill	Ragged	20	
"	Langley, Middlesex	National	23	
"	Warminster, Wilts	British	21	
"	Bradford, Wilts	,,	15	
"	Huntsworth Mews	Ragged	32	
"	George St., Lisson Grove	,,	32	
"	Grotto Passage	,,	14	
"	Foster Street, City	,,	10	
"	Westminster Refuge	,,	35	
"	New Cut	,,	10	
"	Dolphin Court	,,	12	
"	Union Mews	,,	12	
"	Portland Town	,,	12	
"	Harp Alley	British	10	
"	Bristol	Mr. Phiblipart's	20	
"	Polygon, Clarendon Square	- -	124	
"	Bletchingley †	- -	18	1,549
4	Blackheath	National	-	58
6	Hammersmith	Ragged	10	
"	Denham, Bucks	National	20	
"	Headbourne Worthy, Hants	Charity	24	
"	Edward's Mews	Ragged	17	
"	Turk's-Head Yard	,,	19	
"	Gray's Yard	,,	11	
"	Spicer Street	,,	18	
"	Palestine Place	Hebrew	51	
"	Gravel Pit, Homerton	- -	13	
"	Hampshire	Union	50	
"	Devonport Dock-Yard	Orphan	12	
"	Norwood	Convent	28	
"	Tower Ward	- -	37	
"	St. John's, Waterloo	- -	13	323
7	Ipswich	Blue Coat	143	
"	Broad Hill	Ragged	30	
"	Cornhill Ward	- -	100	
"	Red Hill	- -	56	
"	Hanwell	Free	10	
"	Bloomsbury	,,	52	
"	Harrow Hill	National	20	
"	St. Mark's, North Audley Street.	-	76	
"	Westminster Workhouse	- -	12	499

† Party of 18 aged people, whose united ages amount to 1,141 years. By Rector and Gentlemen of Bletchingley.

Return of Schools reported to the Executive Committee, &c.—*continued.*

Date.	From what Locality.	Name of School.	No. of Children in each School.	Total each day.
Oct. 8	Fulham	Union	101	
″	Ruuslip, Middlesex	National	22	
″	Hammersmith	,,	21	
″	All Saints, Spitalfields	Sunday	69	
″	Kensington	Ragged	13	
″	Meal's Yard	,,	26	
″	Episcopal Chapel, Gray's Inn Road.	- -	24	
″	Camden Town	Ragged	35	
″	St. John's	Servants'	16	
″	Christ's Hospital, Ipswich	- -	24	
″	Abingdon, Berks	British and Foreign	165	
″	Nottingham	Blue Coat	18	
″	St. Luke's, Lambeth	Ragged	25	
″	St. John's	,,	20	
″	Chelsea	National	30	
″	Brompton	,,	10	
″	Marylebone Workhouse	- -	258	
″	Fulham Workhouse	- -	101	
″	Charterhouse	Charity	14	
″	Chester	Training College	77	
″	Adelphi Chapel	Ragged	28	
″	- - -	King William's Ragged	28	
″	Enfield	Charity	30	
″	Lambeth	Ragged	52	
″	Hornsey	,,	54	
″	Old Kent Road	British	42	
″	All Saints, Stepney	- -	157	
″	Harrow-on-the-Hill	Charity	35	
″	Tower Ward	- -	32	1,527
9	Pentonville	National	43	
″	Westbourne Green	- -	42	
″	South Hackney	Parochial	53	138
	Total 493 Schools			34,910
	Nine schools marked (*), numbers not recorded, probable number		-	630
	Total number of children in schools		-	35,540

W. MURRAY, *Superintendent of Doorkeepers.*

APPENDIX XIX.

Report of Viscount Canning on presenting the Awards of the Juries to the Royal Commission, and the Reply of His Royal Highness Prince Albert.

Having had the honour of acting as President of the Council of Chairmen of the Juries, it falls to me to lay before your Royal Highness and Her Majesty's Commissioners the Reports of the several Juries upon the subjects submitted to them for examination, and the names of the exhibitors whom they have judged entitled to rewards.

In doing so, it will be convenient that I should state briefly the Principle upon which, by the authority of Her Majesty's Commissioners, the Juries were constituted.

The various Subjects included in the Exhibition were divided, in the first instance, into Thirty Classes. Of these, two were subsequently found to embrace fields of action too large for Single Juries, and were therefore divided into Sub-Juries. This increased the number of Acting Juries to Thirty-four.

Each of these Thirty-four Juries consisted of an equal number of British subjects and of Foreigners. The British Jurors were selected by Her Majesty's Commissioners from lists furnished by the Local Committees of various towns, each town being invited to recommend persons of skill and information in the manufactures or produce for which it is remarkable. The Foreign Jurors were appointed by authorities in their own countries, in such relative proportion amongst themselves as was agreed upon by the Foreign Commissioners sent here to represent their respective Governments.

In the event of a Jury finding themselves deficient in technical knowledge of any article submitted to them, they were empowered to call in the aid of Associates. These Associates, who acted as advisers only, without a vote, but whose services were of the greatest value, were selected either from the Jurymen of other classes, or from the lists of persons who had been recommended as Jurors, but who had not been permanently appointed to any Jury.

Each Jury was superintended by a Chairman, chosen from its number by Her Majesty's Commissioners. The Deputy-Chairman and the Reporter were elected by the Jurors themselves.

Such was the constitution of the Thirty-four Juries taken singly. They did not, however, act independently of each other, inasmuch as they were associated into six Groups, each Group consisting of such Juries as had to deal with subjects in some degree of kindred nature; and before any decision of a Jury could be considered as final, it was required that it should be brought before the assembled Group of which that Jury formed a part, and that it should be approved by them.

The chief object of this provision was that none of the many Foreign Nations taking part in the Exhibition should incur the risk of seeing its interests overlooked or neglected from the accident (an unavoidable one in many instances) of its being unrepresented in any particular Jury.

Each Group of Juries received the assistance of a Deputy Commissioner and of a Special Commissioner, appointed by Her Majesty's Commissioners to record its proceedings, to furnish information respecting the arrangements of the Exhibition, and otherwise to facilitate the labours of the Juries composing the Group.

It was further determined by Her Majesty's Commissioners that the Chairmen of the Juries, consisting of British subjects and of Foreigners in equal numbers, should be formed into a Council; and that the duties of the Council should be, to determine the conditions upon which, in accordance with certain general principles previously laid down by Her Majesty's Commissioners, the different Prizes should be awarded; to frame rules to guide the working of the Juries; and to secure, as far as possible, uniformity in the result of their proceedings.

These are the most important features of the system upon which the Jurors found themselves organized. I will now refer briefly to their course of action.

The Council of Chairmen, in proceeding to the discharge of their duties, were met at the outset by a serious difficulty. Her Majesty's Commissioners had expressed themselves desirous that merit should be rewarded wherever it presented itself, but anxious at the same time to avoid the recognition of competition between individual Exhibitors. They had also decided that the Prizes should consist in three Medals of different sizes; and that these should be awarded, not as first, second, and third in degree for the same class of subjects and merit, but as marking merit of different kinds and character.

The Council of Chairmen found, to their regret, that it would be impossible to lay down any rules for the awarding of the three Medals by which the appearance at least of denoting different degrees of success amongst exhibitors in the same branch of production could be avoided. Accordingly, after fully explaining their difficulty to Her Majesty's Commissioners, they requested, as a course by which it might be materially diminished, that one of the Medals might be withdrawn.

Of the remaining two, they suggested that one, the Prize Medal, should be conferred wherever a certain standard of excellence in production or workmanship had been attained—utility, beauty, cheapness, adaptation to particular markets and other elements of merit being taken into consideration according to the nature of the object; and they recommended that this Medal should be awarded by the Juries, subject to confirmation by the Groups.

In regard to the other and larger Medal, they suggested that the conditions of its award should be some important novelty of invention or application, either in material, or processes of manufacture, or originality combined with great beauty of design; but that it should not be conferred for excellence of production or workmanship alone, however eminent: and they further suggested that this Medal should be awarded by the Council of Chairmen upon the recommendation of a Jury, supported by its Group.

The principle thus described met the views of Her Majesty's Commissioners, and was subsequently further developed by them in a Minute which they communicated to the Council of Chairmen. Its application, however, was not without difficulties, especially as regarded the Foreign Jurors. Many of these had taken part in the National Exhibitions of France and Germany; and to them the distinctive character of the two Medals, and the avoidance of all recognition of degrees of merit between the recipients of prizes, were novel principles, and at variance with their experience; inasmuch as one of the chief purposes of the National Exhibitions of the Continent has been to distinguish the various degrees of success attained by rival exhibitors.

It was to be expected, therefore, that cases would arise in which the Council Medal, as the higher reward, would be asked for Exhibitors whose claims were only somewhat stronger in degree, without differing in kind from those of others to whom the Prize Medal had been awarded. In such cases it became the duty of the Council of Chairmen to refuse their sanction to the award of the Council Medal; without, however, necessarily impugning the alleged superiority of the article for which it was demanded. On the other hand, some instances have occurred in which they have felt themselves called upon to confirm the claim to a Council Medal where the object for which it was claimed showed, in itself, less merit of execution or manufacture than others of its Class. It follows, therefore, that the award of a Council Medal does not necessarily stamp its recipient as a better manufacturer or producer than others who have received the Prize Medal. It is rather a mark of such invention, ingenuity, or originality as may be expected to exercise an influence upon industry more extended, and more important, than could be produced by mere excellence of manufacture.

This is to be borne in mind in considering the List of Awards which I have the honour to lay before your Royal Highness; and I trust that it will be found that the Juries have succeeded in doing justice to the Exhibitors of every Nation and Class, and that they have not departed in any important degree from the purpose of Her Majesty's Commissioners.

One of the first instructions addressed to the Juries by the Council of Chairmen was to the effect that the Prizes should be awarded without reference to the country of the Exhibitors, the Exhibition being considered in this respect as recognizing no distinction of Nation.

It is gratifying to add that the Jurors of every country cordially acquiesced in this principle, and that notwithstanding unavoidable differences of opinion, uninterrupted harmony prevailed amongst them throughout the whole course of their labours. It is not too much to hope that the happy influence of this intercourse may extend and endure far beyond the present occasion.

It is not necessary that I should detain your Royal Highness and Her Majesty's Commissioners with a recital of the other instructions framed by the Council of Chairmen for the guidance of the Juries, or with a detailed account of their proceedings in the discharge of their own functions.

The number of Prize Medals awarded is 2,918. The number of Council Medals is 170.

It is important to observe that no more than one Medal of either denomination has been allotted to one Exhibitor in the same Class, although he may have contributed to that Class more than one article deserving of reward.

The Juries have found it just, in framing their Reports, to make Honourable Mention of certain Exhibitors whose contributions were not such as to entitle them to receive a Medal. Some have supplied specimens of raw materials, which, although curious and instructive, do not imply any great merit of production on the part of the Exhibitor; and others have furnished articles of manufacture which, without reaching a high degree of excellence, are interesting as examples of the processes, or present condition of the trades which they illustrate.

Before concluding, I trust I may be allowed to add that it would be difficult duly to estimate the time and labour expended by the Jurors in their endeavour to discharge faithfully the important duty confided to them. The number of Exhibitors was about 17,000. Of these many, who were reckoned but once in the Catalogue, contributed a large variety of objects, and came within the province of more than one Jury; whilst in other cases towns, and even whole countries, were counted as single Exhibitors, although they presented for examination every kind of manufacture and raw produce which their ingenuity and natural resources could furnish. Upon the whole, the task of the Juries involved the consideration and judgment of at least a million articles; the difficulties attending it being not a little increased by the want of a uniform system of classification of the subjects in some of the foreign divisions, and by unavoidable imperfections in the Catalogue.

In these circumstances the Juries can scarcely venture to hope that accidental omissions may not have occurred; but they have the satisfaction of feeling that these, if any, are not attributable to a want of care or diligence on their part.

It now only remains for me, in laying the result of our labours respectfully before your Royal Highness and Her Majesty's Commissioners, to offer, on behalf of my Colleagues and myself, our grateful acknowledgment of the honourable confidence which you have placed in us; and to express the hope that we shall be found to have fulfilled our trust in a manner worthy of the noble undertaking in which we are proud to have been called upon to bear a part.

ANSWER of HIS ROYAL HIGHNESS PRINCE ALBERT to LORD CANNING'S REPORT, &c.

MY LORD,

THE Royal Commissioners are much indebted to your Lordship, and to the distinguished gentlemen of this and other nations, who have acted on the Juries entrusted with the award of the Prizes in the recent Exhibition, for the zeal with which they have undertaken, and the ability with which they have fulfilled, the task which has been allotted to them. The Commissioners are sensible that the services of these gentlemen have in many instances been rendered at great inconvenience to themselves, and at the sacrifice of very valuable time, and of important avocations. It is with pride and pleasure, that they have noticed in the list of those who have performed this service to the Exhibition, the names of men of every nation, of the most exalted rank, and of the most eminent reputations in statesmanship, in science, in literature, in manufactures, in commerce, and in the fine arts; of men in every respect well calculated not only to form a correct technical judgment upon the merits of the articles submitted to their inspection, but also to maintain the high character which the Commissioners have uniformly striven to impart to the Exhibition.

In no department of the vast undertaking, which has just been brought to a happy close, were greater difficulties to have been apprehended than in that in which your Lordship and your eminent colleagues have given your assistance. On this, the first occasion on which the productions of the different nations of the globe have ever been brought together for the purpose of comparing their several merits, not only were prejudices and jealousies to have been expected to interfere with the decisions, but the nature of the case presented many difficulties of a formidable character, to the formation of a judgment which should appear satisfactory to all. The names of the Jurors, indeed, when once made known, were of themselves a sufficient guarantee for that impartiality which was essential to the fulfilment of their task; and, from all that has come to the knowledge of the Royal Commissioners during the progress of their labours, they are fully satisfied that every award has been made with the most careful consideration, after the most ample and laborious investigation, and upon grounds most strictly honourable, just, and candid.

But although the high character of the Jurors would have fully justified the Commissioners in entrusting them with the award of the Prizes without fettering their discretion with any instructions whatever, had nothing more than an impartial decision been required, there were difficulties of a very peculiar nature inherent to the task, which seemed to render necessary the adoption of some regulations that might, at first sight, appear to have been somewhat arbitrary in their character. The differences in the wants of various nations having necessarily impressed their several manufactures with different characteristics, it would seem to be almost impossible for those who have been in the habit of judging the productions of their own country by one standard, to enter fully into merits which can only be properly appreciated by another standard, since the very points which in the one case appear to be excellences, may in the other, not unnaturally, be taken as defects. This consideration, and a knowledge of the evils which were to be apprehended from any accidentally erroneous decision, in a matter so intimately connected with the commercial interests of every nation, induced the Royal Commissioners to lay down, for the guidance of the Juries, those principles to which your Lordship has referred.

It would, perhaps, have been more interesting to the public, had the Commissioners instructed the Juries to follow the practice which has usually prevailed in the Exhibitions of individual nations, and to grant Medals of different degrees, to mark the gradations of excellence among the Exhibitors; but they feel that they have adopted the safer course, and that which was upon the whole most in accordance with the feelings of the majority of the Exhibitors, in directing that no distinction should be made between their merits if their productions came up to the standard requisite to entitle them to a Prize, but that all should, without exception, take the same rank and receive the same Medal.

The Commissioners, however, considered it right to place at the disposal of the Council of Chairmen a peculiar or "Council" Medal in the cases to which your Lordship has referred. Important discoveries in many branches of science and of manufactures have in this Exhibition been brought under the notice of the public; and it seems just that those who have rendered services of this kind to the world, should receive a special mark of acknowledgment on an occasion which has rendered so conspicuous the advantages which the many have derived from the discoveries of the few.

The grant of the Council Medal for beauty of design, and for excellence in the fine arts, as applied to manufactures, though made upon a somewhat different principle, is also compatible with the views of the Commissioners, since in the cases in which it has been given, it does not mark any greater comparative excellence of manufacture, or assign to one producer a higher place than is accorded to others, but is to be regarded as a testimony to the genius which can clothe the articles required for the use of daily life with beauty that can please the eye, and instruct and elevate the mind. Valuable as this Exhibition has proved in many respects, it appears to the Commissioners that there is no direction in which its effects will be more sensibly and immediately perceived than in the improvement which it may be expected to produce in taste, and the impulse it has given to the arts of design; and a special acknowledgment is justly due to those who have afforded the best examples of art, whether pure or applied, and led the way in this interesting career of improvement.

It now remains for the Commissioners once more to return to your Lordship and your colleagues their cordial thanks; and they must not omit to include in these acknowledgments those gentlemen who have in various ways assisted you in your labours, particularly those who have acted with you as Associates or Experts for the purpose of assisting your judgment in matters requiring very minute and special knowledge of particular subjects; and the Commission are well aware that these gentlemen have frequently been of the greatest service. In the hope that the Jurors and Associates might desire to possess a lasting memorial of the Exhibition, a Special Medal has been struck in commemoration of their important services.

It is the intention of the Commissioners to publish not only the names of those to whom the Juries have awarded Prizes, but also the valuable Reports which they have prepared on the state of science, art, and manufactures, in the several branches of the Exhibition with which the Juries have been conversant. The Royal Commissioners fully appreciate the zeal and talent displayed by those Jurors who have accepted the laborious office of Reporters to the Juries; and they doubt not that their Reports will form most interesting records of this Exhibition, and will afford important materials for ascertaining the progress of human industry, at any future time, when another review of its productions, like the present, may be determined on.

It now becomes my pleasing duty on behalf of the Royal Commissioners, to deliver my most sincere acknowledgments and thanks for the hearty co-operation and support which the Exhibition has constantly received from Foreign Countries. The Foreign Commissioners, who have left their own countries to superintend the illustration of their respective national industries at the Exhibition, have ever shown that desire to aid the general arrangements which alone has rendered possible the success of the undertaking.

To the Society of Arts, which by its exhibitions of works of national industry, prepared the way for this international Exhibition, the Royal Commission and the public feel that their acknowledgments are especially due, and the Commission have to thank that body for having carried out the preliminary arrangements to an extent which justified me as their President in the application which I made to the Crown for the issue of a Royal Commission.

The Commission have also to acknowledge the valuable services afforded by the eminent scientific and professional men who, on the Sectional Committees, aided most materially in founding a scientific basis on which to rear the Exhibition.

To the Local Commissioners and members of Local Committees, but more especially to those who have undertaken the onerous duties of Secretaries, our best acknowledgments are also due. Without their zealous aid it would have been impossible to have obtained an efficient representation of the industrial products of their respective localities.

And finally, we cannot forget that all the labours of those thus officially connected with the Exhibition would have been in vain, had it not been for the hearty good will and assistance of the whole body of Exhibitors, both Foreign and British. The zeal which they have displayed in affording a worthy illustration of the state of the industry of the nations to which they belong, can only be equalled by the successful efforts of their industrial skill. The Commission have always had support and encouragement from them during the progress of the undertaking, and they cannot forget how cheerfully they submitted to regulations essential for the general good, although sometimes producing personal inconvenience to themselves. If the Exhibition be successful in aiding the healthy progress of manufactures, we trust that their efforts will meet with a due reward.

In now taking leave of all those who have so materially aided us in their respective characters of Jurors and Associates, Foreign and Local Commissioners, Members and Secretaries of Local and Sectional Committees, Members of the Society of Arts, and Exhibitors, I cannot refrain from remarking, with heartfelt pleasure, the singular harmony which has prevailed amongst the eminent men representing so many national interests—a harmony which cannot end with the event which produced it. Let us receive it as an auspicious omen for the future; and while we return our humble and hearty thanks to Almighty God for the blessing He has vouchsafed to our labours, let us all earnestly pray that that Divine Providence which has so benignantly watched over and shielded this illustration of Nature's productions, conceived by human intellect and fashioned by human skill, may still protect us, and may grant that this interchange of knowledge, resulting from the meeting of enlightened people in friendly rivalry, may be dispersed far and wide over distant lands; and thus, by showing our mutual dependance upon each other, be a happy means of promoting unity among nations, and peace and good will among the various races of mankind.

APPENDIX No. XX.

REMOVAL OF BRITISH GOODS.

RETURN showing the NUMBER of EXHIBITORS of the UNITED KINGDOM and COLONIES (exclusive of India), whose Goods were removed from the Building during the first three days after the closing; and in each subsequent week until the 14th November 1851, including those placed in the Collection of the Royal Commissioners.

PERIOD.	Number of Exhibitors whose goods were entirely removed.	REMARKS.
First three days, 16th to 18th October	2,360	Removed by hand. No packing-cases admitted.
Week ending 25th October - - -	2,957	
" 1st November - -	1,147	
" 8th November - -	490	
" 14th November - -	114	
Total removed to 14th November	7,068	
Number in course of removal at the same date - - - - - -	79	Of these, some were afterwards found to have presented their goods to the Royal Commissioners or abandoned them.
Exhibitors who had removed nothing	235	
Total Number of Exhibitors of the United Kingdom and Colonies, exclusive of India - - - -	7,382	Viz.:—United Kingdom - - - 6,861 Colonies, not including India 521

The above return has been compiled from reports made daily by the District Superintendents. It was not found possible to carry out the same system upon the Foreign side; but it may be stated that the removal of the whole of the Foreign goods was not completed until the 15th January 1852.

H. C. O.

APPENDIX No. XXI.

INSTRUCTIONS from the COUNCIL of CHAIRMEN to the JURIES.

1. IN accordance with the decisions of the Royal Commissioners, the Council of Chairmen have met and agreed to the following Instructions as a guide to the Juries.

2. *Working of Juries.*—In regard to the working of the Juries, the Council of Chairmen think it advisable to leave much to the discretion and gradual experience of each Jury; but upon the following points the decisions of the Royal Commissioners are precise, and it will be desirable that the practice of the Juries should be uniform.

3. The Juries will, at their first meeting on Monday, consider the course to be followed in the examination of the subjects confided to them, and arrange generally the time and places for their respective meetings.

4. *Deputy Chairmen.*—The first duty of each Jury will be to elect a Deputy Chairman, who will assist the Chairman, and fill his place in the Jury, or at the Council, in his absence.

5. *Reporters.*—A member of the Jury will be appointed to draw up a Report upon the class of subjects submitted to it. It will be advisable that this appointment should be made as soon as the eligibility and willingness of some member to undertake that duty can be ascertained. As the Reports will probably be published, they should be drawn up with the care necessary to describe the State of Industry of all Nations, as shown in this Exhibition, and in such a manner as may best form a permanent record of the Exhibition itself.

6. *Sub-Committees.*—The Royal Commissioners have given their sanction to Juries acting in matters of detail by Sub-Committees. How far it may be convenient in each case to adopt this system, and to depute to a Sub-Committee, or to individual members, the investigation of particular objects, is left to the judgment of each Jury, but it must be borne in mind that no Award can be made but by a majority of the Jury.

7. *Evidence and Associates.*—When a Jury may wish to call in the aid of persons of technical knowledge to aid their judgment, they may do so in conformity with the 29th Article of the General Decision.

8. Jurors of another Class, when knowledge of that Class is required to guide the Jury, may be called in if a majority of the Jury should decide to do so.

9. In both the above cases, however, the persons to be consulted do not possess Votes, and only remain associated with the Jury as long as the special occasion for which they were called requires their presence.

10. *Juries to carry on their Investigations without delay.*—The Juries are expected to carry on their investigation with as little intermission, and to come to their decision with as little delay as possible.

11. *Mode of making Awards.*—When a Jury has decided upon its Awards, those Awards will be submitted to a Meeting of all the Juries of the same group for confirmation, and for the investigation of any Decision that may be disputed.

12. The Awards will then be submitted to the Council of Chairmen, to secure uniformity of action, and a compliance with the Rules now laid down, or which may hereafter be sanctioned by the Council.

13. The Awards will become final as soon as the Council of Chairmen shall have reported that they are in conformity to those Rules.

14. *Secresy.*—All the Considerations, Discussions, and Decisions of *each* Jury and of the Council of Chairmen are to be considered as strictly confidential, and on no account to be divulged until the Award has become final.

15 *Medals to be awarded without reference to Nationality.*—The Medals will be awarded for excellence only, without reference to countries, the Exhibition being considered as a whole, and not as consisting of the products of different nations.

16. *Individual competition to be avoided.*—In making the Awards the Juries will bear in mind that the Royal Commissioners desire that the different Medals should indicate different kinds of merit, and not degrees in the same kind of merit.

17. *Two Medals only to be awarded.*—The Juries will only have to award the medium size and large Medal. The small Medal will not be given by the Juries, the Commission having withdrawn it as a Prize Medal, at the request of the Council of Chairmen.

18. *Conditions for the award of the Medals.*—The medium size (or as it is proposed to be called the "Prize Medal,") will be awarded by the Juries in conformity with the decisions laid down in the paper issued by the Royal Commissioners, with the general indications contained in these directions.

19. The great Medal can be finally awarded only by the Council of Chairmen, upon recommendations made to that body by the allied Juries referred to in Decision 9.

20. Each Jury must obtain the sanction of its own group of Juries to its recommendation of the great Medal, before the Council of Chairmen can take the award into consideration. The grounds, on which this recommendation is made must be fully stated. The great Medal will only be given for very pre-eminent and indisputable merit. It is impossible, until the Juries have acquired a knowledge of the articles exhibited, to define the proportion of the Great to the Prize Medal; but the Council of Chairmen have to announce their intention of making the proportion a very small one.

21. The Chairmen of the groups of Juries have had under their consideration the various conditions which it will be advisable to adopt in the award of Prizes in the various classes into which the Exhibition is divided. They do not intend that these conditions should be compulsory on the Juries, as it is probable that they may require modification in particular cases, but they may be useful as indications to show the general grounds on which awards may be made.

GROUP A.—RAW MATERIALS.

Medals are to be awarded for novelty in the mode of obtaining, applying, and adapting Raw Materials and Produce, skill and excellence in known modes of obtaining, applying, or adapting them; comparative excellence in the quality obtained, combined with utility. The value of the instructiveness of any Series exhibited.

GROUP B.—MACHINERY.

The Sub-Committee of the Chairmen of this Group, for certain reasons set forth in their Report, strongly urge that if novelty of invention (as far as regards Machinery) be not altogether excluded, the greatest caution should be used, and the most jealous scrutiny employed by Jurors before any Prize whatever be awarded under such claims for merit.

CLASS V.—*Machines for Direct Use.*

Fitness of the work for the object sought to be obtained (which combines almost every merit of Machinery), economy in first cost, durability, economy of maintenance, excellency of workmanship.

CLASS VA.—*Carriages.*

Successful application of any new Material, with elegance of design and excellence of workmanship, strength and lightness, reasonable cheapness.

Note.—These qualities will apply almost exclusively to Carriages of luxury.

For the Public Service.

Lightness, sufficient solidity for safety, durability, cheapness.

CLASS VI.—*Manufacturing Machines and Tools.*

Fitness of the Machinery for the objects sought, economy in the first cost, durability, and excellence of workmanship; economy in production, and perfection in articles manufactured; saving in time, and quantity produced; economy of maintenance.

CLASS VII.—*Civil Engineering, Architectural and Building Contrivances.*

Science and skill in Design to obtain the object sought with the greatest economy; fitness in the application of Materials, success in the work in which the Model or Drawing is exhibited; perfection of workmanship in the Model or Drawing exhibited.

CLASS VIII.—*Naval Architecture, and Military Engineering, Ordnance, Armour, and Accoutrements.*

Merits of combination in the Models or Drawings relating to Military or Naval Engineering; advantages obtained by experiments in carrying out the means proposed either by Models or Drawings. Improvements in Arms, Apparatus, or any articles belonging to Military and Naval Service or Architecture, to Rigging or other branches of Seamanship, to Accoutrements or Equipments of Troops, their fitness and efficacy; economy in production.

CLASS IX.—*Agricultural Implements. &c.*

In this Class actual trial has been found generally necessary for the safe award of Prizes; Field Instruments being tried on the land, and Yard Implements being also set to work, and the results exhibited in Numerical Tables.

CLASS X.—*Philosophical Instruments.*

Novelty of inventions, or novelty in the whole or part of the instruments; ingenuity of construction; new application of old principles; application of new principles; improved beauty of form; increased durability, and more extensive application.

CLASS XA.—*Musical Instruments.*

Novelty of invention, novel application of old inventions, improvement of mechanical action. Tone, perfection of workmanship, beauty of design combined with general excellence, increased facility of action, cheapness combined with durability.

CLASS XB.—*Horology.*

Ascertained or probable accuracy and certainty of performance, whether time-keeping, discharging of striking parts, or registering; stability, strength and durability, simplicity and economy of construction, goodness of execution. High finish to be considered subordinate to the scientific objects.

CLASS XC.—*Surgical Instruments.*

For instruments which possess novelty of a useful character, and giving evidence of originality and inventive power, ingenuity in the application, extension, or modification of principles already known, or for new combinations, mechanical skill, including cheapness, finish, and other qualities of mechanical execution.

GROUP C.—MANUFACTURES. TEXTILE FABRICS.

In this, other articles will be rewarded which fulfil in the highest degree the conditions specified in the sectional list, namely, increased usefulness, such as permanency in dyes, improved forms and arrangements in articles of utility, &c.; superior quality, or superior skill in workmanship; new use of known materials; use of new materials; new combinations of materials; beauty of design in form or colour, or both, with reference to utility; cheapness relatively to excellence of production.

GROUP D.—METALLIC, VITREOUS, AND CERAMIC MANUFACTURE.

Important inventions and discoveries, or regularity combined with excellence of design; novel application of known discoveries; great utility combined with economy and beauty; excellence of workmanship and quality.

GROUP E.—MISCELLANEOUS.

Novelty of material in application, excellence of design, material, workmanship, and cheapness.

GROUP F.—FINE ARTS.

Originality and excellence of design and importance of the work, combined with great merit of execution; merit in execution, combined with application to useful purposes.

APPENDIX No. XXII.

STATEMENT of the OPERATION of the "DESIGNS ACT 1850," and "PROTECTION of INVENTIONS ACT 1851," as far as they concerned the EXHIBITION.

THE "Designs Act 1850" (13 and 14 Vict., cap. 104) enabled ornamental designs and designs for shape and configuration as relating to some purpose of utility to be provisionally registered for one year, with a further extension of six months at the discretion of the Board of Trade. The same Act contained clauses empowering the Government to remit the fees for articles placed in the Great Exhibition.

It was arranged that before the 1st February 1851, such designs as were registered should be subject to the fees, which should be returned as soon as the articles were placed in the Exhibition. After the 1st February, registration was granted without fee as soon as the design was deposited in the Exhibition.

The Royal Commissioners appointed Captain Ibbetson to watch this department. His duty was to ascertain whether the design intended to be registered was actually in the Building, and whether the specification agreed with the article itself. He then granted a certificate on the part of the Royal Commission that these conditions had been complied with, upon which certificate the provisional registration was made gratuitously at the Designs Office at Somerset House.

In working the "Protection of Inventions Act 1851," to prevent unnecessary labour being gone through by the gentlemen appointed by the Attorney-General for this purpose, it was necessary that a certificate should be furnished that the article was actually in the Building, and also after the Exhibition opened, that it had not then been exhibited, otherwise any patent would thereby become void.

Certificates to this effect were granted by Captain Ibbetson, and the number of certificates applied for under this and the Designs Act is given below. Further particulars as to the working of the "Protection of Inventions Act" will be found in Appendix No. XXIII.

TABLE showing the Number of APPLICATIONS for Registration under these Acts.

COUNTRY.	Designs Act 1850.	Protection of Inventions Act 1851.
United Kingdom:—		
Class I.	-	1
,, II.	-	2
,, III.	-	3
,, IV.	-	3
,, V.	18	55
,, VI.	6	19
,, VII.	9	43
,, VIII.	9	51
,, IX.	13	29
,, X.	26	85
,, XI.	-	-
,, XII. & XV.	-	-
,, XIII.	-	1
,, XIV.	-	1
,, XVI.	26	18
,, XVII.	3	10
,, XVIII.	-	-
,, XIX.	8	8
,, XX.	9	9
,, XXI.	3	-
,, XXII.	62	61
,, XXIII.	9	2
,, XXIV.	1	6
,, XXV.	2	-
Carried forward	204	407
United Kingdom—*continued.*		
Brought forward	204	407
Class XXVI.	11	15
,, XXVII.	-	5
,, XXVIII.	2	8
,, XXIX.	3	13
,, XXX.	2	2
Jersey and Guernsey	2	3
Total for United Kingdom	224	453
United States	-	46
Austria	-	7
Belgium	-	2
Denmark	-	4
France	32	80
Zollverein	3	2
Hamburgh	-	1
Netherlands	-	2
Russia	-	1
Sardinia	-	3
Sweden and Norway	-	2
Switzerland	-	1
Tuscany	-	1
Miscellaneous	-	86
Total	259	691

I. L. BOSCAWEN IBBETSON.

APPENDIX No. XXIII.

REPORT from Mr. PETER LE NEVE FOSTER upon the working of the "PROTECTION OF INVENTIONS ACT 1851."

THE "Protection of Inventions Act 1851," was passed to remedy an evil arising out of the patent laws which was very early pressed upon the attention of the promoters of the Great Exhibition. At the various public meetings which were held all over the country it was a constant question by artizans and others how, under the existing patent laws, they could exhibit their inventions without forfeiting protection to the fruit of their talent and skill. The patent laws were inexorable on the point; and the expense, difficulties, risk, and delay in the system rendered it impossible for a large class, and more particularly the poorer class, to protect themselves by letters patent previous to exhibiting. They would thus be practically excluded from the benefits of the Exhibition; and the public would be injured by the loss of the knowledge which would otherwise be added to the common stock. The Act, though not without some difficulty and opposition, was passed early in the Session, and received the Royal assent on the 11th of April 1851. On the 14th I had the honour of being appointed by the Attorney-General to carry out the provisions of the Act of Parliament, having for my colleagues Mr. Thomas Webster, Mr. Robert Stephenson, and Dr. Lyon Playfair. We at once turned our attention to render the Act available with as little delay as possible. The practical working of it fell principally into the hands of Mr. Webster and me; the other two gentlemen, from their varied and numerous engagements, being prevented giving constant attention to it. I am glad, however, to have an opportunity of recording the valuable assistance their great knowledge and skill afforded us whenever they were called upon to act.

By the Act of Parliament the Attorney-General, or such persons as he should appoint to issue certificates, on being furnished with a description in writing, signed by, or on behalf of, the person claiming to be the true and first inventor, and on being satisfied that it sufficiently described the nature of the invention, were directed to grant a certificate for provisional registration. This certificate was then registered with the Registrar of Designs at the Designs Office, Somerset House; and from that date the party obtained the protection of the Act, which enabled him to exhibit his invention in the Building, and publish accounts of its details in newspapers, catalogues, and otherwise, without prejudice to the validity of any letters patent he might obtain within one twelvemonth from the date of the registration of the certificate. He had power to sell his invention, though not the article invented. By this means he could enlist in his behalf the aid of the capitalist who might deem the invention worthy of being carried out. He also had the opportunity of ascertaining the novelty and merits of his invention, by seeing the inventions of others, and learning the opinions of those skilled in the various branches of art and manufacture—a most valuable privilege, and one which has been turned to great account by a large number of inventors. This principle is so valuable, that I trust it will not be lost sight of in any scheme of patent law reform; indeed it formed part of the Bill for that purpose as passed by the House of Lords in the last Session of Parliament.

It is, indeed, specially worthy of remark how large a number of persons availed themselves of the provisions of this Act of Parliament, far beyond anything that had been anticipated by its authors, and how mistaken in their views were those who, in their evidence before the House of Lords Committee on the Bill, ignored the necessity of such an Act, in the belief that scarcely a dozen persons would be found to make application under it. The result showed that between the 14th of April and the 1st of May 1851, somewhere about 300 applications for protection were made and certificates granted; and during the whole period that the Exhibition remained open further applications were continually being made. In the whole there were 691 applications, in respect of which 620 certificates were granted, and of these it appears that 615 only were registered. Thus about 70 were dropped, either from insufficiency of their specifications, or by the applicants becoming satisfied on our advice that any further proceedings would be useless for want of novelty or otherwise. It must be remembered, too, that we had no power to refuse a certificate, so long as the conditions required by the Act of Parliament were complied with. All we could do was to see that the specification deposited was sufficient to fix the individual with his invention as specified and exhibited, so that in any subsequently acquired letters patent he should get no protection for anything beyond the exhibited invention. That few persons have, up to the present time, proceeded to complete their protection by obtaining letters patent is no argument against the beneficial working of the Act. A very large number of the inventions for which certificates were granted have, by the publication and exhibition of them, been ascertained to possess neither novelty, practicability, nor commercial value, and have been at once abandoned by their inventors without further waste of time, and without that expenditure of money which, if the Act had not been passed, must have been squandered in obtaining letters patent which the information thus afforded demonstrates would have turned out to be invalid. In the next place the unfortunate delay in carrying a comprehensive system of patent law reform, confidently expected to have passed the

Legislature last Session, has left inventors a prey to extortionate and oppressive fees for letters patent, which practically prevent them from obtaining that protection for their labour, thought, and skill which society is bound to afford them in return for the benefit of receiving a disclosure of their inventions. The protection given by the Act will expire, as to some parties, on the 22nd of April, and as to about 300 on the 1st of May, and as to the remainder at various dates, from the 1st of May to the 13th of October 1852.

It is a matter worthy of consideration whether some short Act of Parliament should not be passed at once before the 22nd of April 1852, extending the term of protection for some further definite period, or at least to the end of the present Session of Parliament, in the hope that some cheaper and more simple system of patent law may in the meantime be established. Unless something of this kind be done, a great injustice is committed towards the applicants under this Act. They exhibited their inventions; they disclosed them to the public in the confident hope (I might almost say under a pledge) that before their protection expired they would be enabled easily and cheaply to perfect their rights under a new and improved system of patent law, and without which many would never have risked the disclosure. Indeed, if this be not done this Act of Parliament will become to many, and from the nature of the case to the most meritorious, inventors, " a mockery, a delusion, and a snare."

The experience of the working of the Act shows how gladly inventors availed themselves of the privilege afforded them; and leads me to believe that, if this principle of provisional protection form, as I trust it will, a part of any new patent law, some arrangements should be made for establishing a permanent public place of deposit for the exhibition of inventions as a kind of Museum of Invention, a true " Inventors' Mart," as suggested by M. D. Hill, Esq., Q. C., in his Letter of 4th November 1850 to the Mayor of Birmingham. It would bring the inventor more readily into communication with the capitalist, and at the same time afford a more extended means of arriving at a just estimate of his invention. It would, coupled with a complete system of indices and publication of specifications, render essential service to inventors in checking that prevalent vice of the present system, the creation of invalid legal rights, in placing the inventor less at the mercy of the capitalist, and in protecting the uneducated inventor from the evils of his own ignorance; whilst the public would be benefited by the stimulus to inventive genius, such an Exhibition cannot fail to exert, and by the saving that time, thought, labour, and money, which now, owing to the secrecy unavoidable under the present system, is so often fruitlessly spent in retracing and reinventing the results of previous ingenuity.

Whether such an Exhibition, arising out of a new patent law system, should be under the superintendence of Government or otherwise, is a matter for consideration; but in any case I am satisfied that inventors would readily pay for the privilege of depositing their inventions in some building for that purpose, and that such an institution would be self-supporting. It is no doubt true that all inventions might not be capable of being so deposited, might not be sufficiently matured for that purpose, and for other reasons; but still this affords no sufficient argument against the establishment of such an institution, nor is it a valid argument against the system of provisional protection to say it is only practically applicable to such articles as are sufficiently matured to exhibit. In the case of what I may call an immature invention, it would only render the examination of the provisional specification a work of greater responsibility and requiring greater care. The protection afforded would be the same, and the benefit to the inventor and the public equally extensive; and, in my opinion, if such a system had a tendency to limit the number of immature inventions, for which letters patent are at present too readily obtained by those who are rich enough to pay the fees, the property in inventions would be rather benefited than not, and the honest and painstaking inventor would reap his reward against him who now obtains protection for a crude and immature notion, which he is incapable of bringing to practical completion, and which while protected is an injury to the public by standing in the way of, and checking, the further progress of invention.

PETER LE NEVE FOSTER.
92, Chancery Lane, 23rd February 1852.

To Her Majesty's Commissioners for the Exhibition of the
Works of Industry of all Nations 1851.

APPENDIX No. XXIV.

REPORT OF MR. ALEXANDER REDGRAVE ON THE VISITS OF THE WORKING CLASSES.

TO HIS ROYAL HIGHNESS PRINCE ALBERT,

PRESIDENT OF THE ROYAL COMMISSION FOR PROMOTING THE GREAT EXHIBITION OF 1851.

SIR, *41, York Terrace, Regent's Park, 9th December* 1851.

HAVING been appointed on the 6th of July 1850, "to co-operate with Sir William Reid, " in obtaining the information and in making the necessary arrangements for enabling the " Working Classes to visit the Exhibition of 1851, and in communicating on this subject with " the proper authorities in London, with the Railway Companies, and with the Local Com- " mittees," my immediate attention was directed by the nature of these duties to the number of persons likely to arrive in London, to the extent of suitable accommodation, to other considerations immediately connected with the subject, and, generally, to the state of the Metropolis. On the close of the Exhibition, it appeared to be desirable that some trustworthy statements should be obtained of the number of visitors, of the employment of their time while in town, with any other collateral facts which might be traced as some of the results of the Great Exhibition upon the social condition of the Metropolis.

The experience of a few weeks after the Exhibition had been opened, dissipated the apprehensions, which, in the absence of all precedent, prevailed at the commencement of the year; the most remarkable quietude and good order prevailed, the social condition of the Metropolis remained unaltered, and the conduct of the visitors, foreign and provincial, was entitled to the highest commendation. These are acknowledged truths, they hardly require proof, so abundant has been the evidence, so general the estimation of them. The investigation of some of the facts, and of the circumstances which attended them, will, however, exhibit most gratifying characteristics which it appears to be important to record; and with the object of bringing together under one view, the more prominent facts which present themselves, I have, by the desire and with the sanction of your Royal Highness, and of the Commissioners, obtained all the official documents and authentic returns within my reach, which would aid me in preparing a plain and truthful statement.

In considering the nature of the information, and of the details to be obtained, it appeared most desirable, in order not only to give greater value to the returns themselves, but to keep the inquiry within certain well-defined limits, that application should be made either to Public Departments or to Public Institutions, and that such authentic and trustworthy information only should be used, as could be procured from such sources; the object being to collect in one report those facts which are found to exist by reference to public documents, rather than to seek for and exhibit those only which may be the most striking.

The returns in general refer to a period between the 1st of April and the 30th of September of each year, being six months, and a convenient term for comparison; and although the Exhibition was not open during the whole of that period, it was the great object of attraction for weeks anterior to the 1st of May.

NUMBER OF VISITORS.

The first point to be ascertained is the number of visitors whose journey to London must be attributed to the Exhibition. The returns published by the Executive Committee show the number of persons who entered the building to have amounted on the 11th of October to 6,063,986, but of this number it was impossible for their officers to ascertain what proportion were resident in London and what proportion were non-residents or foreigners; these points are fairly brought out by the aid of the returns of traffic which have been furnished by the principal Railway and Steam Packet Companies.

The general facilities for travelling, and the cheapness of some routes to and from the Continent which had existed for a considerable time, rendered less pressing the organization of arrangements specially for the Exhibition; but one remarkable enterprize must not be overlooked. On the 1st of May, the South Eastern Railway Company with the co-operation of the Northern Railway Company of France, started one tidal service per day, each way, between this country and France, bringing Paris within an eleven hours' continuous journey of London, and on the 1st of August this service was doubled. This is the most important combination that has been effectively carried out during the present year, and was doubtless the offspring of suggestions, to which the Exhibition gave rise in the promotion of international communication; the successful co-operation of the Northern Railway Company of France and the evident soundness of the scheme have since that period gained the adhesion of other lines of Railway in France to the principle; by which the communication between this country and the Mediterranean has been reduced to a journey of two days; a traveller from Marseilles being able to reach London in 46 hours at an expense, for a first-class ticket, of only £6.

The Railway Companies, from which Returns of Traffic have been obtained, are:—

The Great Western.
North Western.
Great Northern.
Eastern Counties.
The South Eastern.
Brighton.
South Western.

The Greenwich and Blackwall, though each a distinct railway, having independent traffic, are of so limited an extent and so entirely metropolitan in their traffic, that they may be considered as merely facilitating local communication between London and its suburbs, and are therefore excluded from the calculations.

Returns of passengers who arrived by steam-packet, have also been obtained from *every* Company possessing Steam Vessels for the conveyance of passengers from the ports of England, Scotland, Ireland, and the Continent, to the Thames.

The returns from the above sources give the total number of persons who arrived in London as follows:—

From the 1st of April to the 30th September 1850	2,791,753
From the 1st of April to the 30th September 1851	4,237,240

but the increase in the latter over the former period is not to be considered as altogether caused by the attraction of the Exhibition. The Report of the Commissioners of Railways for the year ended 30th June 1850 (the last report printed), shows that the increase of traffic for that year on all the Railways of England and Wales, compared with the previous year, was 14·37 per cent., it will therefore be necessary to add that rate of increase before the excess of passengers in 1851 is compared with the number in 1850. This reduces the increase to 1,035,100, or at the rate of 32·3 per cent. above the usual annual increase.

From inquiries I have made as to the duration of the visits of the Working Classes, I am led to believe that, with the exception of the "day excursionists," it was seldom less than three days and frequently nearly a week. The visits of the middling classes certainly lasted a week, and were generally extended to the limits of their ticket (the ticket varied on different lines, from one to three weeks being allowed according to circumstances). If the arrivals were spread over the whole period of six months, they would amount to 23,540 per day, but they were much more numerous during the last three months, and if the whole of the increase were thrown upon those three months, the arrivals would average 29,290 per day: assuming this latter calculation to be nearly correct, and that each passenger of the extra number who arrived in town (1,035,100) spent on the average one week in London, the permanent addition of visitors to the population of the Metropolis, during the whole of these three months (the *ordinary* arrivals being equalized by the departures) would amount to 80,000.

To those who were in the habit of travelling by railway during the existence of the excursion trains, it must be very evident that unless the means of arrival and departure are increased, London can never be suddenly flooded by such an increase of travellers as to make the slightest perceptible impression. The hindrances and delay caused by the increase of traffic of which the details are here, clearly demonstrate that the railways of the Metropolis bringing to their termini an average of 18,000 passengers daily have sufficient traffic for the regular and punctual performance of their engagements.

The number of visits paid to the Exhibition amounting to upwards of 6,000,000, while the additional number of travellers to London amounted to 1,035,100, is a most gratifying proof that the inspection of the Exhibition was not a cursory one; if it be calculated that of those who entered the building, 1,000,000 were residents in London, each person must, on the average, have paid three visits to the Exhibition.

A curious fact is shown in the proportion of the different classes (first, second, and third) by which the visitors travelled to the Exhibition as compared with the proportion of ordinary years. It is, however, caused in some measure by the low charge (the effect of competition) of a journey from Yorkshire to London during the latter months of the Exhibition; the charge for an excursion ticket from Leeds with three weeks leave in town was respectively for a first-class ticket 15*s.*; for a second-class ticket 10*s.*; and for a third-class ticket 5*s.* From the class of persons who travelled by these trains, it was evident that ordinary third-class passengers were found with second, and very frequently with first-class tickets, and although the proportions vary in so extraordinary a degree, the class of travellers has not varied in like proportion. The proportions for the year 1850 are extracted from the Report of the Commissioners of Railways before quoted: those for the six months ended the 30th of September last are calculated upon data furnished by two of the Railway Companies which distinguished the classes in their returns of traffic.

CENTESIMAL PROPORTION.

	In the Year ended 30th June, 1850	In the Six Months ended 30th September, 1851
First Class	12·306	25·258
Second Class	38·078	53·200
Third Class	49·616	21·542

NUMBER OF FOREIGNERS.

There were few subjects upon which it was so difficult to form even an approximate estimate, as the question of what would be the probable number of Foreigners who would visit the Exhibition, and upon no one point perhaps, has public expectation been so much at fault. On the one hand, the excitement which existed for months on the Continent amongst those classes who might be expected to visit the Exhibition, was calculated to mislead the most cautious inquirer, and on the other hand, no data were attainable of the visits of Foreigners in former years, nor of the number who were resident in London. With such imperfect knowledge, therefore, no estimate could be formed which should not be liable to exaggeration or miscalculation.

The only source whence any information can be obtained, is the Office of the Secretary of State for the Home Department, and having had access, with the permission of Sir George Grey, to the Lists of Aliens kept there, I have been enabled, with every probability of accuracy, to prepare a statement of arrivals during the last three years. These lists are prepared under the provisions of the Alien Act, which require the Commander of every ship having Foreigners on board, to deliver, under a penalty of 20*l*., to the Officer of Customs on the arrival of the vessel at an English Port, a list of all such Foreigners; and lists are regularly transmitted to the Office of the Home Secretary, by the Customs' Officers of all the principal Ports, except Liverpool, at which place the only important arrivals are from the United States; but as American citizens are not subjected to any restrictions on leaving their own, and are not required to produce a passport in this country, and are moreover little marked in their difference from English, the Alien Act is enforced with less facility against them, than against others. The number of Americans who have arrived in this country, however, has been supplied by the Secretary to the American Legation, and thus a very satisfactory statement can be prepared of the number of Foreign visitors, inasmuch as the returns quoted are official documents collected under ordinary regulations, and bearing the impress of exactitude.

The grounds upon which I am induced to believe the Home Office Lists of Aliens to be substantially correct, are, that such lists are forwarded with great punctuality from the Custom House in London, and from the officer of Customs at Dover, Folkestone, Southampton, Brighton, and Hull, those being the only Ports whence Packets regularly ply for the Continent, and that a Foreigner is so habituated in his own, and other countries, to submit to the strict regulations which prevail on the Continent, that, unless he is a frequent visitor to this country, he answers mechanically to the simple inquiries put to him, when the Lists of Aliens are prepared by the Officer of the Packet. It must, however, be remarked, that during the past season, the regulations of Foreign States have been construed with great liberality, and it follows, that in the months of July, August, and September, there was less punctuality in observing the requirements of the English Alien Act, but the omissions cannot be of great amount, for I am assured, on enquiry, that the accuracy of the lists is generally to be depended upon.

From these lists it appears that the number of Foreigners who landed in this country, including the Americans, according to the returns from the American Legation, were—

In 1848, 19,340; 1849, 21,588; 1850, 23,801.

In the six months, from the 1st of April to the 30th of September of the last year, the arrivals were 15,514; in the corresponding period of the present year they were 58,427, or an excess over last year of 42,913. This is much below the expectation, but the expense of a journey from any part of the Continent, except the out-ports of France, Holland, and Belgium, were not lessened during the season, no great schemes of excursion trips were organized, as that by which a body of the Parisian National Guard visited London in 1849, and exaggerated statements were prevalent of the increased expense of the season.

The number of Foreign visitors during the six months ended 30th of September last, as compared with the corresponding period of 1850, shows an increase of 276 per cent., and this rate of increase would hardly be affected, even if the lists are imperfect, and the actual number of arrivals could be ascertained, as the comparison would be made in each case upon data bearing the same relative proportion the one to the other.

So much misapprehension has existed on this subject, that it seems desirable to trace any circumstances which may appear to govern the arrival of Foreigners in this country, and whether on consideration any cause can be assigned why these numbers should not be so large as they are popularly supposed to be.

Many French, Belgians, and Dutch, are in the habit of visiting this country; their regulations in regard to passports are less strict than those of other Continental States; the journey is one of a few hours, and of a moderate expense; but in all other States of the Continent, the ordinary inducements of travel are satisfied with infinite less difficulty, social and political, than by a journey to England. Another reason for the apparently low numbers, is that the proportion of the middle class of Foreigners, who are in the habit of making holiday trips, is small when compared with the number of the same class of English, who visit the Continent, while the proverbial expense of a London season must, in many instances, be a serious impediment against frequent visits.

The case of an English subject is in every respect the very reverse of that of the Foreigner, and it would be interesting to compare accurate statistics of English, with Foreign travelling. Here, however, only an approximate estimate can be formed, for it is impossible to obtain the number who visit America, or the Colonies, and the only data are of those who visit the Continent. From authentic returns which have been obtained, it would appear that 37,142 British subjects are known to have left this country for the Continent, between the 1st of April and the 30th of September, 1851. There are many, however, who travel without passports, or obtain them only when obliged, so that no record can be obtained of them in this country; but even making allowance for these, and bearing in mind the obstacles which impede the Foreigner, and the facilities which tempt the Englishman, the number of Foreigners annually arriving in this country, as recorded in the Alien Lists, will not appear to be so small as the first impression the figures might indicate.

The general accuracy of the Official Lists of Aliens, may also be inferred from an examination of the Returns of Passenger Traffic. During the six months ended the 30th of September last, as compared with the corresponding period of 1850, there arrived by Steam-packet, direct to London from Foreign Stations, an *excess* of 21,278 passengers; of course, a large proportion of these were English. During the same period, the *excess* of passengers who arrived at the London Station of the South Eastern Railway, was 80,974. Thus, while the *excess* of Foreigners who arrived in this country was 42,913, the *excess* of passengers, English and Foreign, by the two principal routes from the Continent, was 102,252, and the number of Foreigners certainly appears to bear a fair proportion to the total number of travellers.

Annexed, is an abstract of the Alien Lists, showing the number of Foreigners who arrived in London during the six months ended the 30th of September last, distinguishing their country, with a statement of the population of the several countries, and the proportion of arrivals to the population.

NUMBER of FOREIGNERS who arrived in ENGLAND, between the 1st of April and the 30th of September, 1851.

COUNTRY.	Number of Arrivals.	Population.	Proportion of Arrivals to 10,000 Inhabitants.
Holland	2,952	3,128,841	9·43
Belgium	3,796	4,335,319	8·75
France	27,236	35,400,486	7·69
*Germany	10,440	15,813,022	6·60
Switzerland	734	2,113,248	3·47
United States	5,048	23,138,454	2·18
Spain and Portugal . . .	1,774	15,699,441	1·13
Norway, Sweden, and Denmark	648	6,650,938	0·97
Prussia	1,489	16,171,564	0·92
Italy (including Lombardy) .	1,489	22,740,344	0·65
Austria	672	32,862,770	0·20
Russia and Poland	854	60,362,315	0·14
Turkey and Egypt	86		
Greece	94		
China	8		
Not ascertained	1,107		
Total	58,427		

* There is considerable difficulty in distinguishing the Countries of Central Europe. The comprehensive term "German" is so frequently inserted in the Alien Lists, that it is impossible to ascertain with accuracy the description of the countries. Thus, under the head of "Germany," are included Bavaria, Saxony, Hanover, &c., and many Austrians and Prussians are calculated here as Germans.

PRECAUTIONARY ARRANGEMENTS FOR THE MAINTENANCE OF ORDER, &c.

The peace and general good order of the Metropolis have rarely been disturbed, except by some short-lived political or social outbreak, which the Government has been able to suppress without resorting to extraordinary powers, or requiring permanent additions to the existing institutions for repressing crime and maintaining tranquillity. The network of Railways which now intersect the country, and the immediate connexion of all the principal towns of Great Britain with the Metropolis through the successful adoption of the electric telegraph, have doubtless strengthened the hands of Government in case of emergency; but even before the existence of these facilities the military force in and within a day's journey of London was singularly small when compared with the garrisons maintained in the capitals of the Continent, and even less in proportion to the dense population their services are required to protect.

The ordinary military force in the Metropolis has consisted of two regiments of Life Guards, and six battalions of Foot Guards in London; and in the vicinity, a regiment of Light Dragoons, a force of Military Pensioners, the head-quarters of the Artillery at Woolwich, the Sappers, the Marines, and some few detachments from regiments of the line there and at Deptford, in all not exceeding 13,500 men. This force has been found sufficient for all ordinary purposes; but on the occasion of the Exhibition, additional regiments were quartered in and near London, and others so disposed as to facilitate the concentration, if necessary, of a large body of troops in the Metropolis. But although a considerable additional force had thus been drawn in upon the Metropolis, amply sufficient, in the opinion of the authorities, to prevent, in conjunction with the usual amount of troops and the police, any disturbance that might have occurred, yet from the judicious manner in which the troops were disposed, the public would have been ignorant, but from rumour, that the ordinary force had been augmented even by a single regiment.

With regard to the Police, it was well known that a large addition had been made to the strength of that body.

The Police of London consists of two distinct bodies, the Metropolitan and the City Police. The additional and arduous duties, which must of necessity devolve upon the police force during the summer, required the hands of those responsible for the peace of the Metropolis to be strengthened, and consequently a considerable addition was made to these forces previous to the 1st of May.

The comparative strength on the 1st of January and on the 1st of May, was as follows :—

	1st Jan.	1st May.
The Metropolitan Police	5,525	6,620
The City Police	567	677

Besides these precautions it was thought advisable effectually to provide against the depredations from the probable influx of provincial and foreign thieves, and bad characters during the Exhibition. Two of the most intelligent of the police from each of the twelve principal towns in the kingdom were transferred temporarily to London, where their knowledge of the local offenders was expected to prove serviceable, and for the same reason a few members (in all 34) of the police of Paris, Brussels, New York, and ten other cities, were brought to this country, and organized by an officer specially appointed for the purpose ; and interpreters were assigned to the several Police Courts, that there might be no delay or failure of justice in cases in which foreigners were the interested parties.

Among the minor details of police arrangements, the regulations for the preservation of order in the streets were very successful, and though most frequenters of the streets are from observation aware of the benefit of the services of the police, it may not be out of place to record here some evidence which shows in a marked degree the effect of those regulations.

A continued crowd of vehicles and pedestrians filled the leading thoroughfares from 9 A.M. to 6 P.M. ; most of the former were public conveyances hurrying to and from the Exhibition, many of the latter strangers, ignorant of town, but guided by the stream. It would seem almost impossible but that numerous accidents must have occurred from this crowded state of the streets ; on several occasions above 100,000 persons traversed the same roads leading to the Exhibition, twice in one day, in addition to the ordinary traffic, but the returns from the Hospitals of cases admitted show that instead of an increase there has been a diminution of 12 per cent. in the number of accidents. A Hospital is generally the first place to which a person injured in the streets is taken, and the number of cases brought into the six Hospitals situated in the immediate neighbourhood of crowded thoroughfares is the best evidence that can be obtained on the subject. The following is a comparative statement for the six months ended 30th September last, and for the corresponding six months of 1850, and it places in a most striking view the immunity of all the leading thoroughfares from accidents, except that one where accidents would seem to have been inevitable to a much greater extent than have occurred :—

Number of Accidents admitted from 1st of April to 30th of September,

	1850	1851
St. George's Hospital	289	
Charing Cross "		
Westminster "		
King's College "		
Middlesex "		
University College Hospital . .		
	1264	1104

LODGING, FOOD, CONVEYANCE, &c.

There are no materials from which it can be ascertained how far the usual accommodation existing in the Metropolis for visitors of all classes was augmented during the period of the Exhibition, and there are no means of obtaining such information as would give any useful results. The number of houses assessed to the poor rates, or the amount of assessment at certain periods in the different parishes, are, perhaps, the only attainable data, but they do not represent any facts strictly confined to this point, because the continued migration of the metropolitan population westward will account for the increase of occupied houses, while the consequent increased value of property will account for the increased assessment. After making some inquiries on this subject, I was not encouraged by the probable results to pursue it further, being satisfied that if a positive increase had taken place it would have been known from other sources, and then the investigation might have been attended with utility.

The question of facilitating the accommodation of the working classes who would probably visit the Exhibition, in respectable and reasonable lodgings, having been a subject which engaged at one time the consideration of the Royal Commission, it is most satisfactory to record that there appears to have been no want of ample accommodation.

The necessity of some organization was one with which many people were impressed, and I have been favoured with a communication from Archdeacon Sinclair, showing the strong feeling with which he and other zealous clergymen viewed the importance of this subject, which I am permitted to quote :—

" It occurred to me, that much good might be effected if the clergy of the parishes in the neighbourhood of the Exhibition could be prevailed upon to assist in finding lodgings for the working classes who might be expected to visit the Metropolis this year. I was apprehensive that if large numbers, of either sex and of all ages, should arrive from every quarter without having previously secured accommodation, the result both to their health and their morals might be most disastrous. The arrangements by which I hoped to lessen or prevent these evils were,—that Committees in the country should, through the medium of the London clergy, secure respectable lodgings in town at a cheap rate by taking them at once for six months : that the lodgings for single men and women should be separate ; and that the artizans should be sent up in relays, each remaining a few days or perhaps a week. A hundred beds for twenty weeks would thus afford accommodation for at least 2000 visitors. All parties, it appeared to me, would be gainers by the plan. The visitors, instead of wandering about in search of lodgings, would bring billets with them and be directed where to go ; they would not be cheated nor plundered, and at the same time they would feel that they were not isolated strangers who had no character to maintain, but were connected with each other, and had the credit of their town or parish to uphold. On the other hand, the lodging keepers would be assured of a fair rent for a long period, and would not be under the necessity of admitting into their houses strangers whom they had never heard of, and who brought with them no other recommendation than a portmanteau, but visitors for whose good conduct a Committee of gentlemen in the country was responsible.

" I communicated my plan to a number of the neighbouring clergy, and, notwithstanding all the trouble and anxiety in which it would have obviously involved them, I had the gratification to receive from them assurances of support. But on consulting my friends in the manufacturing and mining districts, I was informed, to my regret and disappointment, that the artizans were jealous of interference, and would prefer at all hazards to choose their own time and mode of visiting the Metropolis."

The establishment called the "Mechanics' Home," which was conducted with great propriety and liberality, seemed to offer to the working classes many advantages, but the abundance and moderate charge of private lodgings prevented the appreciation of its utility, for although arranged with beds for 1000 visitors, there were rarely more than a quarter occupied.

There are some sources from which the statistics of food can be obtained, but these still are general, and there is some difficulty in applying them to the exigencies created by the Exhibition ; for instance, the quantities of tea, of wine, spirits, tobacco, entered for home consumption would appear to show the extra quantities consumed, but in fact there are many other circumstances which govern the taking of goods out of bond, and these quantities therefore do not prove increase of consumption at a particular date. A statement is annexed of the quantities of certain imports from the Tables of Trade and Navigation ; in most there is an increase during the present year, in a few others a decrease, but as these returns are the best to be obtained on this subject, they are appended in this place.

QUANTITIES of the undermentioned IMPORTS entered for HOME CONSUMPTION, during the following Periods.

NATURE OF IMPORT.		In the Eight Months, ended the 5th of September,		
		1849	1850	1851
Oxen, Cows, and Calves	No.	30,301	32,750	40,507
Sheep and Lambs .	,,	62,877	54,191	82,489
Swine	,,	1,027	1,801	5,319
Corn	Qrs.	2,398,892	2,371,944	3,078,975
Flour.	Cwts.	3,004.980	1,691,236	3,828,134
Butter	,,	191,809	211,266	234,569
Cheese	,,	237,143	206,961	198,498
Currants & Raisins .	,,	312,026	277,724	310,698
Tea	lbs.	33,392,733	34,334,900	35,889,090
Cocoa	,,	2,120,662	1,963,696	2,029,496
Coffee	,,	23.387,101	20,967,150	21,789,263
Sugar	Cwts.	3,966,097	4,253,660	4,446,208
Eggs	No.	73,605,759	81,081,745	87,346,099
Brandy	Galls.	1,316,043	1,198,582	1,175,747
Rum	,,	1,880,590	1,839,954	1,779,685
Geneva	,,	17,870	17,783	17,243
Wine	,,	4,251,382	4,367,894	4,359,617
Tobacco and Snuff .	lbs.	18,182,672	18,245,351	18,304,537

NOTE.—The Imports of Bacon, of fresh and salt Beef and Pork, and of Poultry, have decreased.

In the absence of fiscal or municipal charges upon the conveyance of articles of food into the Metropolis, it is difficult to obtain any data of the quantities consumed in London. The records of Billingsgate, Newgate, Leadenhall, and the green markets, show neither the quantities sold, nor the prices, the tolls not being charged according to quantity. The records of Smithfield Market, however, show accurately the quantities of cattle sold there, and the prevailing prices. Some comparisons of quantities conveyed into London by railway and water carriage have also been procured, and returns are annexed showing the fullest information that can be obtained within a limited time, of the consumption of articles of food in the Metropolis.

An ACCOUNT of the NUMBER of BEASTS, SHEEP, and CALVES, SOLD in SMITHFIELD during the six months ended the 30th of September—

	1850	1851
Beasts	116,254	120,723
Sheep	954,550	960,360
Calves	20,144	22,563

An ACCOUNT of the QUANTITIES of FRUIT, VEGETABLES, EGGS, and FISH, conveyed to LONDON by *two* Railways, during the six months ended the 30th September—

	1850	1851	
Fruit, Vegetables, &c.	4,624	6,222	tons.
Eggs	1,747	3,128	,,
Fish	4,931	9,219	,,

The following Return has been prepared from documents in the Custom House; but as I have reason to believe that the quantities of fish which are conveyed by railway and water-carriage fluctuate very considerably, the Return cannot be relied upon as showing a precise comparison of the consumption of fish: it is, however, the only comparative statement that could be procured:—

An ACCOUNT of the QUANTITIES of SEA-BORNE FISH brought to LONDON during the six months ended the 30th September—

	1850	1851	
Cod	186,099	175,477	Number.
Skate	444	1,011	,,
Mackerel	405,200	20,800	,,
Whiting	478,736	667,240	,,
Turbot	935	1,304	,,
Thornbacks, Hallibut Ground Fish, Sturgeon	4,660	1,509	,
Salmon	2,650	2,926	Boxes.
Plaice	77,214	49,418	Bushels.
Soles	113.636	92,330	,,
Herrings	31,031	64,158	Barrels.
Smelts	2,313	2,600	Bushels.
Haddock	491	332	Barrels.
Eels	343	340	Tons.
Lobsters	103,100	264,500	Number.
Oysters	66,000	73,662	Bushels.
Crabs	2,035	2,132	,,
Shrimps	463	404	,,
Wilks, Cockles, Mussels	8,717	8,764	,,

The number of public-houses is determined by the Justices in Petty Sessional Divisions, and is founded upon a representation of the wants of the neighbourhood. The number of public-houses within the area of the Metropolis, as defined in the Census Tables, was on the

1st of July 1850	5,200
1st of July 1851	5,231

But this increase was not granted to supply the anticipated requirements of the past summer, but from the growth of new neighbourhoods, and from local causes.

The number of licensed victuallers and of public-houses within the Bills of Mortality, was on the 1st March 1851, 4,346, and of beer-shops, 2,139. Compared with the population (as nearly as can be ascertained), the proportion of such houses was as follows:—

One public-house to	46	houses.
One beer-shop „	94	„
One public-house „	376	persons.
One beer-shop	756	„

The necessity of increased means of locomotion called into existence additional omnibuses and cabs. It is greatly to be regretted that the old system which prevailed on all the main lines of thoroughfare remained unimproved, no respect having been paid to the comfort or convenience of the public, either as regarded the description of vehicle or the rate of fares. The former were mostly old worn-out omnibuses, merely brought into use for the occasion, the latter subject to intricate and varying regulations of distances, at prices enhanced from 25 to 50 per cent.

The number of omnibuses were—

On the 1st of July 1850 . .	1,245
„ „ 1851 . .	1,454

and of the former, 273 altered their routes, as existing previous to the 1st of July last, to "Prince's Gate," near the Exhibition.

There were therefore 482 omnibuses specially plying to and from the Exhibition. Calculating that each omnibus made three journeys per day, and carried on the average ten passengers (in returning from the Exhibition in the morning, and in going there in the afternoon, they carried but few passengers, and were frequently empty), the above number of omnibuses would provide means of conveyance for, and probably did carry 28,000 persons per day. In addition to the above 482 omnibuses, the regular route of at least one-fourth of that number more brought them within short distances of the Exhibition, conveying passengers probably in like proportion.

The number of cabs were—

On the 1st of July 1850 . .	3,066
„ „ 1851 . .	3,429

I have not been able to ascertain whether the means of conveyance upon the river, which has within these last few years become one of the most bustling thoroughfares in the Metropolis, were augmented or not during the present year, but in September last there were six companies, possessing sixty steam-boats plying to or from Hungerford Bridge and London Bridge, which traversed that portion of the river lying between these two points sixty times every hour. None of these vessels are licensed to carry less than 300 passengers, but the same motive which induced the Directors to decline giving any information as to the number of journeys, applies to the question of passengers. The increase of traffic, however, of one of those companies, from the first April to 03t. September 1851, as compared with the corresponding period of 1850, was at the rate of 38 per cent. There are numerous steam-boats plying below London Bridge of greater capacity; those belonging to the Star Gravesend Company, conveyed, during five months of the present year, above 800,000 persons, in addition to the passengers possessing season and periodical tickets.

STATE OF EMPLOYMENT AND PRICES.

The various grades and classes of society in the Metropolis are so closely united, and their mutual dependence is so interwoven, that the fluctuation of pauperism and of abundant or scanty employment is, with few exceptions, felt only in seasons of *general* prosperity or depression. So long as the price of provisions is moderate, so long will there be employment for the labouring classes in the Metropolis, and a consequent diminution of pauperism. In manufacturing towns and in purely agricultural districts, a sudden rise or fall in the price of the raw material, or of agricultural produce, at once affects the condition of the labouring poor; but in the Metropolis these sudden changes are rarely known. The modes of gaining a livelihood are so various, and the directions in which employment can be sought are so manifold, that it is very seldom a partial depression is felt. During the last two years the price of bread, meat, and clothing has continued moderate, and the supply has been abundant, especially in the Metropolis. The condition of the labouring man is therefore in many respects satisfactory, and no very marked difference will be found in the number of poor dependent for relief upon the metropolitan parishes.

The following is a statement of the number of paupers relieved in the Metropolitan Unions on the 1st of July 1850, and on the 1st of July 1851.

	1850	1851
In-door paupers . .	14,362	14,588
Out-door	43,206	38,552
Total . . .	57,568	53,140

The prices of the chief articles of consumption exhibit but little difference during the past summer, as compared with 1850. Bread remained at the same price during the two periods; meat has varied but little; of poultry or fish no record of price can be consulted. The following are returns of the average prices at Smithfield market, and of the contract price of the several kinds of provisions required in poor-houses of the Unions forming the Metropolitan District.

Average Price of the best descriptions of Meat in Smithfield market in

	1850	1851	
Beef . . .	3/6½	3/6	per stone of 8 lbs.
Mutton . .	4/0¼	4/0⅞	
Veal . . .	3/8¼	3/9¾	

Average Prices of Provisions in 36 of the Metropolitan Unions.

	1850	1851	
Meat . . .	4/11¾	5/1	per stone of 14 lbs.
Bread . . .	10/2¾	10/0¾	per cwt.
Flour . . .	30/1¾	30/6½	per sack.
Milk . . .	1/3½	1/3	per gallon.
Cheese. . .	36/2¼	35/9¾	per cwt.
Potatoes . .	86/11½	77/1¾	per ton.

STATE OF HEALTH.

The Weekly Returns published by the Registrar-General exhibit, as compared with the average of ten previous years, an increased rate of mortality in the months of February and March of the present year, which continued during the summer and the commencement of the autumn, but in a less marked degree. It would not be within the province of this report to enter into a critical examination of the causes of death, and of the accidents of temperature and climate which have produced that excess of mortality; it must, however, be observed, that the more prevalent diseases proving fatal in the spring and summer were attributable to the inclemency of the season, and that in the month of July, when the summer was more distinctly felt, although the number of visitors was rapidly increasing, and when they would have made an impression, if any could be traced to that cause, the mortality decreased, and the diseases which at that time proved most fatal were those incidental to children of tender years, and those generally prevalent at that season of the year.

The mortality of the twenty-six weeks ended 27th September, 1851, compared with the corresponding weeks of ten previous years, allowance being made in the calculation for the estimated increase of population, has been either equal to or below the average in nine, and has exceeded the average in seventeen weeks. The total number of deaths in the twenty-six weeks was 25,980, and the excess of deaths over the average 493, which occurred principally at the beginning of the period, the latter weeks being either below, or but slightly above the average.

Although the number of deaths is a sufficiently accurate index of the state of health generally, yet it was not improbable that during the past summer sickness might have increased in amount, though not in severity, and reference has been made to the Hospitals and Dispensaries in order to ascertain whether any material increase of sickness had been observed, or only such an increase as might have been expected from a slightly increased mortality. Returns have been obtained from the eleven Hospitals and from thirteen of the principal Dispensaries of the Metropolis, and a statement of the results is annexed:—

	From 1st of April to 30th of September,	
	1850	1851
In-patients	14,742	15,359
Out-patients	177,692	195,950
	192,434	211,309

The amount of sickness disclosed by these figures, although they do not include returns from all the Dispensaries, may be considered as a fair criterion of the comparative state of public health during six months of the two last years. There has been an increase of applications during the latter period at the rate of 9·8 per cent., but excluding the Hospitals and Dispensaries in the City, in Southwark, and Islington, the increase is at the rate of 2·9 per cent.

The foregoing numbers extend only over a period of six months, and if the condition of the public health continued the same for a year, there would be upwards of 400,000 persons dependent upon twenty-four Institutions for medical relief. There are many other Dispensaries, there are the Parish Infirmaries, and the Medical Officers of Poor Law Unions, from which sources returns have not been requested, and the number therefore just quoted does not represent the entire annual amount of sickness relieved by the Public Institutions of the Metropolis. This statement is the more deserving of attention from the admission made at several of the Dispensaries, that a large number of applications are from persons not suffering from organic or clearly defined disease, but from ill health produced by the want of wholesome and sufficient food and clothing, and residence in noxious abodes.

PUBLIC AMUSEMENTS.

Although the Great Exhibition was the chief attraction in London during the past summer it was not the sole object that absorbed the public attention; the various National Monuments of art and of historical interest, the Galleries of paintings, of sculpture, of scientific and popular collections, were visited with extraordinary eagerness and with untiring energy. Fortunately this popular feeling was in some measure anticipated, and the means of gratifying it were increased by facilitating admission to most of the national and public buildings.

With regard to Foreigners, arrangements were made by which the Ministers of Foreign Courts resident in London, were authorized to issue cards, admitting the bearers to inspect the following establishments without requiring them to produce the ticket of admission, which is required in some cases specially for Foreigners, and in others for Visitors in general: viz.:—

Windsor Castle.
House of Lords.
Woolwich Arsenal.
Woolwich Dockyard.
The other Dockyards.
Society of Arts.
Dulwich Gallery.
East India Company's Museum.
United Service Museum.
Sir John Soane's Museum.

And the regulations of admission to the undermentioned establishments, to which the number of Visitors must of necessity be limited, were so far relaxed, that the Foreign Ministers were enabled to procure admission with facility for Foreigners whom they recommended, viz.:—

The Royal Mint.
The Bank of England.
The Model Prison, Pentonville.
Millbank Penitentiary.
Newgate Gaol.
Bethlem Hospital.

The British Museum was open to the public five days in the week instead of the usual limit of three days, and the usual vacation was postponed until the close of the Exhibition.

The usual vacation at the National Gallery was also postponed.

The pleasure-grounds at Kew were opened every day instead of two days in the week.

The admission fee to the floor of St. Paul's was abolished, and the regulations at Westminster Abbey were adapted to the requirements of the season.

The museum bequeathed by Sir John Soane was free four days in the week, instead of the average of two days.

St. Stephen's, Walbrook, a well-known example of the talent and taste of Sir Christopher Wren, was for the first time opened gratuitously two days in the week.

The Societies of the Temple withdrew the restriction of admission by ticket to their Church, and to Middle Temple Hall.

These and some other concessions were made by the Government, by public officers or by public Institutions, and the gradual tendency of the age to encourage healthy and intellectual enjoyments would have led to the expectation from those bodies of the abolition during the past summer of some of the usual restrictions. Simultaneously with the announcement of these arrangements, the Duke of Northumberland, the Earl of Ellesmere, and the Lord Ward determined to risk the experiment of admitting to their mansions and galleries all willing to seek the opportunity. The success of these concessions must be sought in the proper demeanour of the visitors, and the amount of gratification which has been diffused: the effect, it is to be hoped, will be traced in the gradual development of a taste for amusements which tend to interest the mind, rather than merely to allay excitement.

The annexed tabular statement shows the number of visitors to every gallery and public building of which it has been possible to obtain returns, and great as the number of visits were to the Exhibition, it must be borne in mind that the visits enumerated in this Table are, with few exceptions probably, composed of but a single visit by each person, and not of accumulated visits which constitute the return of persons visiting the Exhibition.

NUMBER of VISITORS to NATIONAL and other BUILDINGS, MUSEUMS, &c.

—	Number of Visitors during a period of Six Months, ended about the 30th of September,	
	1850	1851
†Windsor Castle	31,228¶	129,400
*St. Paul's Cathedral:—The Floor	No account.	From 600 to 6000 Visitors per hour.
‡ ,, ,, The Galleries	..	110,250
*Westminster Abbey	..	About 6000 a-day.
*British Museum	720,643	2,230,242
*National and Vernon Galleries	519,745	1,109,364
*Hampton Court Palace	208,374	325,774
*Kew Botanic Gardens	163,828	184,248
*Kew Pleasure Gardens	35,218	127,517
‡Armoury at the Tower	32,313	233,561
‡Crown Jewels at the Tower	32,888	209,000
‡Greenwich Hospital	66,054	364,680
*Arsenal at Woolwich	17,211	100,104
*Dockyard at Woolwich	10,744	165,421
*Dockyard at Deptford	3,313	4,465
†Dulwich Gallery	13,000	19,000
†Sir J. Soane's Museum	3,251	7,357
†United Service Museum	33,733	36,470
*East India Museum	18,623	37,490
†London Missionary Museum	No Account.	About Tenfold.
†City Museum	..	2,680 Parties.
*St. Stephen's Walbrook	Not Open.	137,500
*Temple Church, and Middle Temple Hall	..	450 per Day.
†Northumberland House	..	240,000
†Sion House	..	110,000
†Bridgewater Gallery	..	80,000
*Lord Ward's Collection	..	20,000

The inquiries, of which this return is one result, were not confined to mere questions of enumeration, but had reference also to the general behaviour of the visitors, in order that some judgment might be formed of the spirit in which the various concessions and facilities were received.

The Dean of St. Paul's states, with respect to the conduct of the visitors to the Cathedral, "In no one instance, or hardly one, were our attendants compelled to call in the assistance of "the police;" and speaking of the number, he says "During the first week, an attempt was "made to count the number of persons who entered the Church after eleven o'clock, when "divine service ended. The average amounted to about 600 *an hour*. The numbers so "increased as to baffle all calculation. The most intelligent of our attendants has no doubt, "that at the fullest time it amounted to *ten times* that number per hour."

With respect to the British Museum, Sir Henry Ellis says, "In regard to the behaviour of "the visitors, not a single instance occurred during the whole time in which, as chief officer "of the Museum, I was called upon to interfere in regard to any irregularity."

Colonel Thwaites, Assistant-Keeper of the National Gallery, states, "No injury accrued to the "pictures, and small as is our establishment, there was no occasion to call in additional aid, or "any assistance of the Police Force in keeping order."

The Earl of Ellesmere, speaking of the general admission of visitors by ticket to his Gallery at Bridgewater House, which is distinct from the other apartments, and to which there is a separate entrance, says, "My own experiment I consider quite satisfactory.'

Mr. Williams, by whom the admissions to Northumberland House and Sion House were arranged, states "The conduct of all persons was most praiseworthy, and although on some of "the days as many as 7000 persons were admitted in one day into Northumberland House "between the hours of 11 and 5 o'clock, no damage whatever was done to the furniture or to "the numerous articles of virtû and china on the various tables and cabinets in the state "apartments; and at Sion not a flower was taken nor a shrub injured."

With reference to Lord Ward's Collection, exhibited at the Egyptian Hall, it is stated that "not a casualty or drawback of any kind occurred; but on the contrary, the greatest order and "decorum prevailed throughout, while the gratification expressed was unmingled."

These opinions will apply to all the Exhibitions; the same propriety of conduct was witnessed in all classes of the visitors.

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* Admittance free. † Admittance by ticket easily procurable. ‡ Admittance by regulated fees.

¶ These are the numbers admitted in 1849. The state apartments having been closed in June 1850, for the remainder of the year.

The following RETURN of the NUMBER of FOREIGNERS who visited the undermentioned GOVERNMENT ESTABLISHMENTS, will show to how great an extent the privilege conceded by the AUTHORITIES has been valued during the past Summer:—

COUNTRIES.	Woolwich Arsenal.	Woolwich Dockyard.	Portsmouth Dockyard.	Devonport Dockyard.	Deptford Dockyard.	Sheerness Dockyard.	Chatham Dockyard.	Pembroke Dockyard.	Total.
America	156	211	14	3	..	..	..	..	384
Belgium	720	1,122	8	1	4	..	..	..	1,855
Denmark, Norway, and Sweden	45	148	18	16	..	14	..	..	241
France	1,154	3,648	44	23	6	..	4	4	4,833
Germany, including Austria	586	831	31	2	..	..	..	..	1,450
,, ,, Bavaria	103	299	4	..	2	..	..	..	408
,, ,, German States	211	225	19	2	..	..	1	..	458
,, ,, Hanse Towns	..	77	..	..	..	..	..	..	77
,, ,, Hanover	158	200	32	1	..	..	..	..	391
,, ,, Hungary	..	3	..	..	..	..	..	..	3
,, ,, Moravia	..	..	..	..	3	..	..	..	3
,, ,, Prussia	2,007	2,523	58	3	..	..	..	..	4,591
,, ,, Saxony	187	250	..	1	..	..	..	..	438
,, ,, Dantzic	..	..	..	..	3	..	..	..	3
Total of Germany	3,252	4,408	144	9	8	..	1	..	7,822
Greece	15	27	..	..	..	..	..	..	42
Holland	125	196	16	20	5	..	..	..	362
Italy, including Italy	582	46	20	..	..	..	..	..	648
,, ,, Naples	..	10	..	..	..	..	..	..	10
,, ,, Sardinia	..	360	4	19	4	..	..	..	387
,, ,, Sicily	..	11	..	..	..	..	..	..	11
,, ,, Tuscany	..	17	..	1	..	..	..	..	18
Total of Italy	582	444	24	20	4	..	..	..	1,074
Mexico, Texas, Peru, Brazils	10	21	1	..	1	1	..	..	34
Portugal and Spain	117	142	12	6	2	..	..	..	279
Russia	32	84	13	9	1	3	..	..	142
Switzerland	264	277	18	3	..	1	..	..	563
Turkey	11	21	2	1	..	..	..	..	35
Total of all Nations	6,483	10,749	314	111	31	19	5	4	17,716

STATE OF CRIME.

An uninterrupted succession of arrivals of large numbers of all classes, both from the provinces and from abroad, the absence of experience as regarded their conduct under circumstances so new and unprecedented as those of the present year, and the impossibility of conjecturing the course which might be taken by unscrupulous agitators, led many most intelligent persons to anticipate these arrivals with anxiety and even with alarm; and although their fears have not been realized, yet there were many considerations pregnant with doubt, if not apprehension; the recent revolutionary movements on the Continent, the freedom of access to this country to men proscribed in their own, and the temptations to the increased activity of our own disorderly population, were matters which, at the time, required serious attention as affecting the public tranquillity.

These apprehensions were felt and expressed by public men, thus increasing rather than allaying the general fears, and it was announced from the Magisterial Bench, that the conviction of known offenders would be visited with sure and condign punishment. This determination probably had some effect, but so marked was the absence of that increase of crime which was anticipated, that the Recorder of the City, in charging the Grand Jury at the Central Criminal Court, on the 16th of June and on the 15th September, while he acknowledged that he was one of those who had thought it would be impossible that large numbers of persons should be collected together without causing a great increase in the labours of his court, remarked that there had been actually a considerable decrease in the number of cases brought before him, and that "although so many foreigners had assembled in this country from all parts of the "world, some of whom it was to be feared had come here with objects of plunder, there was "not the name of a single foreigner in the calendar charged with robbery."

The Recorder on those occasions spoke of the number of cases brought before his Court, no doubt a criterion of the general state of crime, but there is so large a proportion of cases which never come under the cognizance of a Court of Sessions, that his evidence does not show the actual condition of the Metropolis during the six months of the Exhibition, and I have therefore compared the number of persons brought before the magistrates of the thirteen Police Courts, and those taken into custody by the City Police, charged with any description of offence whatever, from that of the gravest to that of the lightest character, during the six months from the 1st of April to the 30th September of the present year, with the corresponding period of last year.

The following returns have been prepared from the monthly reports of the Police Magistrates to the Secretary of State for the Home Department, and they represent the actual condition of the Metropolis in regard to crime, disorder, &c., with greater accuracy than the returns prepared by the Commissioners of the Metropolitan Police, inasmuch as the jurisdiction of the Police Courts is nearly co-equal with the limits of the Metropolis,* and extends to every description of charge which appears in the Metropolitan Police Returns, while a large proportion of cases are brought before the Police Courts by summons, &c., of which the police have no cognizance, amounting to more than 10,000 cases in the year.

The total number of persons included in the returns from the Police Courts, and from the City Police, for the period of six months from the 1st of April to the 30th of September was in

1850	1851
44,075	45,294

The presence of a large body of trained and efficient police, and the exercise with promptitude of the duties which have been required of them, would have tended to deter from the commission of many offences which a less numerous or active body of men would have been unequal to prevent; and when it is considered that a multitude of all classes and countries assembled in the Metropolis during the past summer, that a large addition had been made during that period to the strength of the police force, adding greatly to the means and opportunities of apprehending offenders, these figures are certainly not the least among the many gratifying incidents of the Exhibition.

But this satisfactory condition must not be attributed to the exertions of the police or to the judiciousness of the regulations they were instructed to enforce. It is to the mass of the people themselves that is due the chief praise for sobriety, good feeling, and propriety of conduct under the greater temptations in which they may have been placed during the present year.

In corroboration of this it is not sufficient to quote merely the total numbers, but to analyze the returns, and test the conduct of the people by a comparison of the nature of the offences committed.

The following is an abstract of the Returns, distinguishing those offences which are most prevalent, and dividing them into five heads, for the purpose of placing in a clear light the evidence afforded by the Returns.

NUMBER of PERSONS brought before the THIRTEEN POLICE COURTS of the METROPOLIS, and of those taken into CUSTODY by the CITY POLICE, (except cases under PRIVATE ACTS, &c., in which the COURT has power only to make an ORDER,) from the 1st of April, to the 30th of September 1850, and 1851.

NATURE OF CHARGE.	From the 1st of April, to the 30th of September,		Increase per Cent.
	1850	1851	
Drunkenness, or being Drunk and Disorderly	11,428	11,733	2·
Assaults, Assaulting, Resisting, or Obstructing Peace Officers, Breaches of the Peace, &c.	10,349	10,733	3·7
Picking Pockets, frequenting Public Places with intent to commit Felony, known Thieves, suspicious Characters, unlawfully possessing Goods, &c.	3,589	3,674	2·5
Uttering Counterfeit Coin	324	477	47·2
Offences under the Hackney and Metropolitan Carriages Act	2,215	2,472	11·6
All other Charges, not enumerated above	16,170	16,205	0·2
Total	44,075	45,294	2·7

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* The jurisdiction of the Police Courts extends to a distance varying from 5 to 8 miles from Charing Cross; that of the Metropolitan Police to a distance of 15 miles, and it includes a large district, partaking of a rural character, and not influenced by circumstances which affect the population of a city.

The two first heads comprise nearly one-half of the entire number of offenders, and exhibit the failings and offences into which the labouring classes are most prone to fall. In a season of rejoicing and excitement, the first-named vice has always prevailed, and it is the forerunner of those in the second head. It is seldom that drunkenness, or assaults, &c., are premeditated, their growth into an offence is not the result of art or design, which can be frustrated by a police officer, and the comparison of these charges becomes a strong proof of the morality or licence of the people.

The next head includes all those offenders, whose habits of depredation might have been expected to draw them to the Metropolis, and whose numbers would swell the Police Returns. They are the very class of depredators whom the presence of a numerous police force would awe, and the return shows how far they were controlled during the summer.

The fourth head is of persons charged with uttering Counterfeit Coin. The opportunities which the assemblage of so great a number of persons, and the excitement attending it, offered for the perpetration of this offence, will at once account for the large increase; but the mere uttering a single piece of base coin, or having but one piece in possession, does not constitute an offence, and a professed utterer is well acquainted with the loop-holes by which he can escape punishment, so that the figures probably do not show the full extent to which this offence was committed.

The fifth head is of offences against the Hackney and Metropolitan Carriages Act, and includes not only charges preferred against drivers and conductors, but those preferred by them for non-payment of fares, &c. Though there must have been numerous overcharges and frauds, which probably escaped punishment, either from disinclination to appear at a police court, or from want of time, yet the figures may be taken as some evidence that the police arrangements for protecting the public from imposition, were not without effect.

The remaining head includes all other charges and offences, by none of which is the question of the conduct of the visitors affected.

There are so many circumstances which may influence not only the increase or decrease of the number of persons charged at police courts, but the nature of the more prevalent charges, that it is necessary to refer back further than one year, to ascertain the real condition of those classes which constitute the bulk of offenders. Since 1845, the Police Returns show a great variation; the following being a comparative statement from that year to the present time.

In 1846, the increase over the preceding year, was at the rate of 6·2 per cent.
In 1847, the decrease ,, ,, ... 1·3 ,,
In 1848, the increase ,, ,, ... 3·7 ,,
In 1849, ,, ,, ,, ... 9·5 ,,
In 1850, ,, ,, ,, ... 0·2

and in the six months ended the 30th of September of the present year, compared with the corresponding period of 1850, the increase was 2·7 per cent.

With respect to the nature of the charges, inasmuch as the different seasons of the year, and other causes, may increase or diminish the temptations to drunkenness, &c., I have ascertained the numbers charged between the 1st of April, and the 30th of September, of each year, from 1845 to the present time.

In Drunkenness the comparison is as follows:—

In 1846, the increase over the preceding year, was at the rate of 3·0 per cent.
In 1847, the decrease 8·4
In 1848, ,, 7·2
In 1849, the increase 24·7
In 1850, ,, 18·4
In 1851, ,, 2·6

In Assaults, &c., the variations were somewhat similar:—

In 1846, the decrease over the preceding year, was at the rate of 3·1 per cent.
In 1847, ,, ,, ,, ... 19·5
In 1848, ,, 3·4
In 1849, the increase 8·2
In 1850, ,, 11·8
In 1851, ,, 3·7

It is not important to continue this comparison with the other offences; the two first being the test of respectable and peaceful conduct, not of depredators, but of a large class of persons innocent of crime.

The preceding returns have been calculated for the uniform period of six months, which has been adopted in all the other comparisons in this Report; but when considering the state of the Metropolis with reference to crime, good order and obedience to law, it will not perhaps be irregular to deviate from that limitation. The influx of visitors was at the greatest height during the latter half of the period, the arrivals were at an increasing rate from the month of June to the close of the Exhibition, and the months of July, August, and September, were certainly those when it might have been feared that the duties of the Police and of the Magistrates would have been more arduous than at the commencement of the Exhibition. The following Return has therefore been prepared in order to show the results of those three months; and it is a most gratifying fact that, while not only the total number of charges, but each separate class of offences had increased during the months of April, May, and June of 1851, as compared with 1850, that increase disappears on comparing the two periods of the succeeding three months, that drunkenness, &c., had decreased, and that the increase of assaults, &c., had materially diminished. As might have been expected known thieves, &c., and utterers of base coin appear in a larger proportion, but in every other instance the numbers have decreased.

Number of Persons brought before the Thirteen Police Courts of the Metropolis, and of those taken into Custody by the City Police, (except cases under Private Acts, &c., in which the Court has power only to make an Order,) during the months of July, August, and September of 1850 and 1851.

Nature of Charge.	From the 1st of July, to the 30th of September.		Increase or Decrease per Cent.
	1850	1851	
Drunkenness, or being Drunk and Disorderly	6,052	5,718	Decrease 5·5
Assaults, Assaulting, Resisting, or Obstructing Peace Officers, Breaches of the Peace, &c.	5,638	5,691	Increase 0·7
Picking Pockets, frequenting Public Places with intent to commit Felony, known Thieves, suspicious Characters, unlawfully possessing Goods, &c.	1,828	1,970	,, 7·7
Uttering Counterfeit Coin	139	232	,, 66·8
Offences under the Hackney and Metropolitan Carriages Act	1,512	1,274	Decrease 15·7
All other Charges, not enumerated above	8,723	8,203	,, 5·9
Total	23,892	23,078	Decrease 3·4

The returns do not contain a single case of sedition, of seditious conspiracy, or of unlawful riot, &c. Employment, regular wages, and abundant food, reduce to a shadow the duties of a police force, in regard to political offences. It may be said that the large addition to the police force, (amounting to nearly one-fourth,) tended to awe discontent. Those who live by agitation must labour in their calling, but they cannot excite a people enjoying those three conditions, which have more influence in allaying agitation than the most imposing array of repressive force.

The number of offences committed within the Exhibition were 23, of these 12 were of picking pockets, and 11, of stealing goods exposed in the Exhibition; and these latter are instances rather of a morbid desire of possessing an article from the Exhibition, than of a premeditated intention of theft.

ARRANGEMENTS MADE BY THE CLERGY, BY RELIGIOUS BODIES, &c.

It is an important feature of the Exhibition, that while it directly addressed itself to the improvement of habits and the diminution of wants, it was no less calculated to influence the mind and the better feelings; that whilst the inspection of its works of industry should tend to elevate taste and instruct in economizing time and labour, it should also impress enduring lessons of higher moment. Some time before the Exhibition opened, in order that such results might be more general and the effect of the Exhibition the more lasting, steps were taken by the Clergy of the Metropolis, presided over by the Bishop of London, by various Religious Societies of the Metropolis, and by special Committees, for providing extra religious services, both in places of worship of the Church of England, and in chapels of private denominations, for inviting foreign Protestant ministers to this country, and enabling them to celebrate religious services in their own language, and generally for diffusing the means and increasing the opportunities of religious instruction.

The established Societies which undertook special duties in connexion with the Exhibition, were—

The British and Foreign Bible Society.
The Religious Tract Society.
The Evangelical Alliance.
The London City Mission.
The Christian Instruction Society.

The Committees formed specially were—

The Extra Church Services Committee.
The Committee of the Foreign Aid Society.
The Foreign Conference Committee.
The Extra Sabbath Services Committee.

The Extra Church Services Committee provided,—

- Services in six Chapels in French and German by Clergymen of the Church of England;
- A Series of weekly Lectures at St. Martin's Church;
- A Conversazione to introduce Foreign Pastors to the Clergy;
- A Reading-room for the use of Foreigners;
- Distribution of Bibles, Prayer-books, &c.

The Foreign Conference Committee provided,—

- Fourteen extra Services weekly in French, German, Swedish, and Dutch, by Foreign Protestant Ministers;
- Gratuitous accommodation for five Ministers at a time;
- Dinner for 200 during a fortnight at Freemason's Tavern;
- Twenty Missionaries; some stationed at Folkestone, Southampton, Brighton, and Newhaven Railway Stations, and others at all places of resort in the Metropolis; who sold 600 Bibles, lent to Hotel and Lodging-house keepers (especially for Foreigners) 1500 Bibles, and distributed 350,000 Tracts.

The Extra Sabbath Services Committee provided,—

- Two Services for 22 Sundays in Exeter Hall, celebrated by ministers of different denominations. It is calculated that 130,000 persons attended these Services; every sitting being free, and no collection being made.

The London City Mission and the Christian Instruction Society employed Missionaries, and distributed Tracts, Bibles, &c.; the number of Missionaries expressly employed were 9, in addition to the number (250,) constantly employed by the London City Mission.

The British and Foreign Bible Society, and the Religious Tract Society, provided the preceding Societies and Committees with Bibles, &c., at reduced prices. The Bible Society distributed within the Exhibition altogether, 457,000 Tracts or specimens of their Bibles, each containing at least a portion of Scripture, and disposed of 382,971 Bibles and Testaments, being an increase over last year of 36,134 copies.

At Westminster Abbey an extra Service was celebrated every Sunday evening in the Nave, and the afternoon service at St. Paul's was also celebrated in the Nave, in order to accommodate the increased congregations.

The foregoing are the results of the investigation by which I have endeavoured to illustrate the social condition of the Metropolis during the Great Exhibition of 1851. An anxiety to place this statement in the hands of Your Royal Highness as soon as it could be prepared, may have occasioned the omission of some facts of lesser importance; but sufficient are perhaps here recorded to assist Your Royal Highness in forming an opinion as to the bearing of the Exhibition upon some matters of deep interest.

I have, &c.,

ALEX^{r}. REDGRAVE.

APPENDIX No. XXV.

REPORT of the CHIEF COMMISSIONER of POLICE on the Subject of the EXHIBITION.

IT became my duty, as the time for the Great Exhibition of 1851 approached, to represent to the Secretary of State that a large augmentation of the Police force would be required for carrying on the Police arrangements immediately in connexion with the Exhibition, and for the general duties of Police in all parts of the metropolis.

The subject was officially submitted for the consideration of Secretary Sir George Grey in my letter of Nov. 5, 1850; the principal heads were mentioned by which numerous additional duties and greatly increased responsibility would be imposed on the Police. It was stated that it must be expected from the unprecedented character of the Exhibition, and the invitation given to the whole world to take part in it, that a vastly greater number of persons would be induced to visit this metropolis than have ever been brought together on any former occasion, such an assemblage necessarily increasing in an immense degree the responsibility and the labours of the Police. Large and continuing demands on the Police would thus be made for measures of observation and precaution; provision must be made for the protection, by night and by day, of the Exhibition Building, the safety of the property of such enormous value deposited in it, and the protection of all visitors from theft, insult, &c.

Arrangements were required for the convenient access and egress of all, not only in the immediate approaches to the Exhibition, but likewise to keep the thoroughfares and streets from distant parts free from obstruction. The difficulties in making such arrangements were greatly aggravated by the nature of the locality. The streets leading to the Park, as well as the roads in the Park at that season, in ordinary years, are so thronged, that considerable numbers of Police are regularly employed merely to keep open the passage for carriages and persons on horseback, interruption at any points immediately causing a block for a long way into the town. Carriages, public and private, from all quarters, going to the Exhibition, must finally come upon the single line of road leading from Piccadilly towards Kensington; this road in several points is narrow, and barely sufficient for the usual traffic. Police regulations would have to be enforced as to the line to be kept by carriages going to the Exhibition, and returning from the places of waiting and drawing off. Increased protection by the Police must also be given to the inhabitants of streets in the neighbourhood of the Park, the crowds of people that would be brought there affording opportunities for the commission of crime, and causing offence and annoyance.

On the 8th Feb. 1851, I communicated to Sir George Grey that the Royal Commissioners for the Exhibition desired that the interior of the Building should be taken charge of by the Police on the 11th Feb., when the goods for the Exhibition were to be first received. I stated that I had been in communication with the Executive Committee on the subject; that the Building was in a very insecure state, wholly open at one end, and unfinished in many places; that upwards of 2,000 workmen were employed there; the goods were admitted in waggons accompanied by attendants, Custom-house officers, porters, the parties to whom goods belonged, and their assistants, going in and out; that it was impossible for me to say, under those circumstances, what number of Police would be required for the duty; that I should make an experiment for a few days with such number as I found necessary, and expected then to be able to form an opinion of the number wanted during this preparatory period. The Police for this duty were to be drawn from the ordinary reserves of the force, and I requested that an augmentation of 50 constables should be made to the preparatory class.

On the 10th February the following order was given for the Police to take charge of the Building:—Police Order. "Superintendent Pearce will take charge of the Exhibition Building to-morrow, and until further orders, with 3 inspectors, 5 serjeants, and 50 constables, and make such arrangements for the duties of the Police as will ensure the safety of the property of Exhibitors on its arrival at the Building; he will report to the Commissioners at any time when it is desirable that an augmentation of the Police should be made."

The Police for the Exhibition was increased subsequently, on—

February	24th.		2 sergeants	20 constables.
,,	29th.		3 ditto	30 ditto.
March	7th.		2 ditto	30 ditto.
	18th.		3 ditto	20 ditto.
	21st.		——	20 ditto.
,,	24th.	1 inspector	5 sergeants	30 ditto.
April	2nd.			30 ditto.
	13th.		2 sergeants	20 ditto.
	15th.		3 ditto	——
	17th.			4 constables.
	20th.			20 ditto.
	21st.			30 ditto.
	23rd.			30 ditto.

And the whole number on the 30th April was 1 superintendent, 4 inspectors, 25 sergeants, and 334 constables.

For the arrangements of Police for the State ceremonial of the opening of the Exhibition on the 1st May by the Queen, I beg to refer to the orders (copies of which are transmitted). A memorandum of the Military arrangements in aid of the Police on that day is also transmitted.

I had much pleasure in acknowledging by my letter of May the 2nd to Secretary Sir George Grey the valuable assistance I received from Captain Owen, Royal Engineers, the other officers of the Royal Engineers, and a detachment of the corps of Royal Sappers and Miners doing duty at the Exhibition. I took that opportunity, also, to express my acknowledgments to Colonel, now Sir William, Reid, K.C.B., Chairman of the Executive Committee, for his able co-operation, which had been most valuable to me on all occasions since the charge of the Exhibition had been undertaken by the Police.

On the 26th May the Exhibition was open for the first time to visitors paying one shilling only, and it was stated in the order to the Police for that day—"As much larger numbers of visitors may be expected on the days when the price of admission is only a shilling, special arrangements of Police will be made for the safe and speedy admission of the visitors at each entrance, to prevent crushing, or the admission of more than the Building can properly receive, and to enable all admitted to move about within the Exhibition."

Regulations were issued as to the lines of movement of the visitors, and for various other cases, in the event of a more active interference by the Police becoming necessary to preserve order. Also for closing the entrances if the crowds within the Building should make such a step necessary. It never was found necessary, however, to close the entrances, and after a short time the regulations as to the lines of moving of the visitors were not strictly enforced, the Police interfering only at particular points where the crowding of visitors became dangerous, or caused obstruction.

The general arrangements of Police continued the same from this time until the closing of the Exhibition on the 15th October. The numbers of the Police on duty inside the Building were increased on each Monday and Tuesday, as on those days the visitors were usually much more numerous; and as the time for the closing the Exhibition drew near, the number of visitors increased so greatly that it was found necessary to increase the Police also. Returns are transmitted, showing the numbers of the Police employed at the several periods stated. The Police were finally withdrawn from the Exhibition Building on the 14th January, 1852, all the goods having been then removed.

Upon the closing of the Exhibition to visitors, measures were taken to reduce the augmentation of the Police force made on account of the Exhibition, and on the 17th October and 5th November, 1851, the orders, copies of which are transmitted, on this subject, were issued.

On the 3rd November, 1851, Secretary Sir George Grey transmitted to the Commissioners the copy of a letter from the Royal Commissioners of the Exhibition, expressing their high sense of the admirable conduct of the Police force, and stating that they had awarded the sum of £2,710 to be distributed in gratuities to those of the Police who were employed in connexion with the Exhibition. I submitted, by my letter of 26th November, 1851, a scheme for the distribution of this sum, which was approved by Sir George Grey.

A very handsome silver tea-pot had been given, in the month of August, to Superintendent Pearce, by command of the Queen, as a mark of Her Majesty's appreciation of the constant zeal, intelligence, and discretion shown by him when in attendance upon Her Majesty on the occasion of the Queen's frequent visits to the Exhibition; and a handsome gold watch to Inspector John Beckerson and Inspector Robert Lester, as a mark of approval of their attention in the discharge of their duties when in attendance upon Her Majesty and the Princesses on the occasion of their visiting the Exhibition. A handsome gold watch was presented to Inspector Nassau Smith O'Brien, from the Prince of Wales, as a token of appreciation of his great attention when in attendance upon His Royal Highness and the Prince Alfred at the Exhibition. Numerous presents were made by several of the Exhibitors to individuals of the Police in testimony of their services.

In reference to the organization of the Police force for the duties in connexion with the Exhibition, arrangements were made to obtain a certain number of the Police of foreign cities and of our own provincial towns from whence criminal characters might come here for the purpose of committing crime. It was considered that these Police officers would be very useful in pointing out such criminal characters to the Metropolitan Police in order that they might be kept under observation to prevent them committing crime. The foreign and provincial Police and interpreters were placed under the immediate directions of Major (now Lieutenant-Colonel) Paschal, who was well qualified for the duties, and by his knowledge of modern languages able to communicate with strangers of other countries. I transmit a return of the number of foreign and provincial Police and interpreters employed, and a report by Lieutenant-Colonel Paschal as to the satisfactory results of their employment.

A Police station was erected at the Prince's Gate in the Park; the Police duties at the Exhibition were carried on from this. The Police assembled there, the reserves remained in readiness, and cells for confinement of prisoners were provided; communication by the electric telegraph between the office of the Commissioners of Police and this station was constantly kept up.

There is no official registry kept in any office of the foreigners who come to this country, and with a view to ascertain as nearly as possible the numbers arriving here during the Exhibition, I made arrangements to procure daily returns from each of the principal ports of the number known to have landed. The whole number shown by these returns to have arrived between the latter end of June and the middle of October, is 66,620.

Returns are also annexed of the number of foreigners, distinguishing those of each nation, who visited the Royal Dockyard and Royal Arsenal, Woolwich, from May 1st to October 31st :—

Woolwich Dockyard - - - - - -	9,769
The Royal Arsenal - - - - - -	6,541

The following returns show the total numbers and the enormous increase of visitors in the year 1851 above those in 1850, at the following places :—

	1850	1851
Woolwich Dockyard - - -	10,744	165,421
Deptford Dockyard - - -	3,313	4,465
Woolwich Royal Arsenal - -	17,211	100,104
Greenwich Royal Hospital - -	66,054	364,680

At the British Museum :—

From 1st May to 1st October, 1850 - -	509,801
From 5th May to 10th October, 1851 - -	2,133,995

There were several additional places of public amusement opened :—

3 Panoramas.
1 Diorama.
1 Wyld's Globe.
2 Music and Dancing-rooms.
1 Batty's Hippodrome.
1 Gore House Pleasure-grounds.
1 Exhibition of Modern Paintings.

Total - 10

The demand for conveyance by public carriages was constantly much beyond what could be supplied, and the accounts from the Office of Inland Revenue show that there was an increase of 203 omnibuses and 363 hackney carriages licensed in the year 1851, the total number for each year being—

	1850	1851
Omnibuses - - -	1,291	1,494
Hackney Carriages -	3,066	3,429

There seems to have been no difficulty in obtaining lodgings by the visitors.

The Police returns show a remarkable and most pleasing absence of crime in any way connected with the Exhibition. The cases of every sort that occurred within the Exhibition Building in which parties were apprehended, were 21, and the value of property stolen £4 *5s.* *3d.* and the amount recovered was £4 *5s.* *3d.*

The general criminal tables for the Metropolitan Police district show that for the five months from 1st May to 30th September, there was an increase of 294 persons only taken into custody, and for the months of July, August, and September, there was an actual decrease as compared with the previous year. This is wonderful, and calls for the most grateful acknowledgment, considering the enormous accumulation of property of such value, and so greatly exposed in the Exhibition itself, the numerous facilities for the commission of crime whenever large numbers of persons are assembled, and the general state of the metropolis during that season, when a large increase of criminal offences might have been expected.

The extensive measures of precaution adopted, and the arrangements of Police so successfully carried out, all contributed to these results, without diminishing in any degree the praise so constantly admitted to be justly due to the millions who visited the metropolis on this ever-memorable occasion.

Whitehall Place, 7th February 1852. (Signed) RICHARD MAYNE.

APPENDIX No. XXVI.

REPORT relative to the MEASURES adopted by the EXECUTIVE COMMITTEE of the GREAT EXHIBITION of 1851, for the security of the BUILDING and its Contents from risk by FIRE.

[Notwithstanding the incombustible nature of the materials of which the Building was mainly constructed, many of its contents were very much the reverse ; for though gunpowder and other articles of an explosive nature were excluded, a large proportion of the goods exhibited were necessarily of a more or less inflammable nature.

The construction of the floor, admirable for getting rid of dust which dropped through the openings left between the boards, also unfortunately allowed the passage of shavings and other highly inflammable fragments, the unavoidable accumulation of which was a source of much anxiety.

Considering the frightful consequences of a fire, or even an alarm of fire, among the enormous crowd of visitors sometimes in the Building, it behoved the Executive Committee to spare neither pains nor expense in securing the public against such a calamity.

The following account of the precautions taken has been prepared by Captain Gibb, Royal Engineers, who under the immediate control of Sir William Reid, and with the advice of Mr. Braidwood, the Superintendent of the London Fire Brigade, was in charge of this department during the whole time the Building and its contents were in the custody of the Royal Commissioners.]

Captain Gibb's Report.

Royal Sappers and Miners' night picquet.

As early as January 1851, while the Building was still under the control of the Contractors, a party of four men of the Royal Sappers and Miners patrolled the Building and its workshops every evening after work, remaining until they had seen every fire and light properly extinguished, except those in the Offices, where the great press of work rendered it necessary to allow fires and lights to be kept up during the night. With the addition of a party of the London Fire Brigade, this arrangement remained in force until the opening of the Building, when a picquet of 24 men of the Royal Sappers and Miners was mounted in the Building at 8 P.M.; this party on arriving at the Exhibition was marched round it, to all the stations where the different fire-engines, fire-cocks, tanks, buckets, &c., were placed, thus every individual ascertained that all the stores were in the proper place and ready for use. The whole of the 200 men of the Royal Sappers and Miners had been drilled to the fire-engines and made acquainted with all the arrangements undertaken to provide for the immediate extinction of any fire. These 24 men slept in the Building every night, one man remaining on sentry to be in readiness to rouse the men in case of alarm, and a non-commissioned officer and two men patrolling the Building every two hours. They came off duty at 6 A.M., when another party of the Sappers came for the usual daily duty. This arrangement continued until the 4th November 1851. The number was then reduced to 12 men, on the 11th November to 2 men, who remained all night in the Building until it was again given over to the control of the Contractors, Messrs. Fox and Henderson, in December 1851.

Two non-commissioned officers were selected, one for each side of the Building, Foreign and British, whose sole duty it was to take charge of the men who were told off for the fire party, and in conjunction with the men of the London Fire Brigade on duty at the Building they were held responsible for all the stores connected with the fire department, that everything was in its proper place and ready for immediate use; the water on, and the pressure not less than 60 feet, the regulated height. When the body of Royal Sappers and Miners was marched to work in the Building each day, a party of 12 or 15 men was allotted for each side of the Building, and placed under these non-commissioned officers, who distributed them among the various fire stations, shown in the accompanying plan, and visited them during the day to see that the men were in their places, and alert.

Royal Sappers and Miners' duty by day.

From February 27th 1851, three men of the London Fire Brigade attended daily at the Building. On the 6th March three more men were added to the number; and from this time four men remained on duty night and day in the Building. Shortly after the opening of the Building to the public, an acting engineer of the London Fire Brigade, was appointed, he remained on duty the whole day, taking especial charge of all the arrangements connected with the placing of the stores, the distribution of the men, &c., visiting the different stations during the day, and reporting immediately to the Officer of the Executive Committee anything irregular, or stores or fire-cocks damaged. A register of the pressure of the water was kept by the sub-engineer on duty every hour by night and every half-hour by day, taken from the pressure-gauge. Thus the exact amount of pressure in the pipes was seen at a glance at any time, and the certainty of the water being always turned on by night and by day ensured.

The London Fire Brigade.

A party of boys, varying from 16 to 4 in number, were engaged and constantly employed in clearing away the shavings which had accumulated during the preparations under the floor boards. The use of oiled tow to clean the machinery being considered liable to spontaneous combustion, every Exhibitor of machinery was called upon to provide a metal box to hold it when not in use, and particular pains were taken to keep the under side of the floor clear.

Smoking was not allowed under any circumstances, either during the Exhibition, or during the arrangements. The use of lucifer matches was forbidden. Gas was the only combustible allowed, and it was used to warm, as well as light, the offices, and to heat tea and coffee in the refreshment rooms. Besides the lamps fixed for Police purposes, and those just alluded to, the use of gas was only allowed in a few very exceptional cases, such, for instance, as in the lighthouses, where no danger could be apprehended.

It will be seen that although numerous engines and other mechanical appliances were provided, the greatest reliance was placed on the simplest possible arrangements. There were 40 cisterns kept constantly full, most of them fed by pipes, and round each cistern were ranged

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